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2023**

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GS CONNECT

It gives us immense pleasure to present an innovative approach to master 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 their 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, 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 it 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 source yet in a manageable size. To use this book we recommend you to master the components of general studies (GS) syllabus as broken into rows and columns (provided in the beginning after preface). Each cell comprising of the portion of GS becomes the connect for the current and every news subsequently covered guides the reader to the address of the syllabus. It is logical to expect that 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 a 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 rankholders and other scholars. Continuing in line with the effort, we have started with programs like 7 Question (7Q) Challenge, Shell Points, Stock Points, Content Enrichment Booklet etc.

When it comes to evaluation, we are altogether 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 from our Expert Team and can get Feedback. **Drop a mail at evaluation@ksgindia.com for registering 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.	1	2	3	4	5	6	7	8	9	10	11
GS – I	Culture-Art Forms, Literature and Architecture from ancient to modern times.	Indian history significant events, personalities, issues and the Freedom Struggle	Post independence issues, National boundary and disputes	Indian society features, issues, globalization and diversity	Women - issues and developments	Urbanization – problems and remedies	Distribution of industries and resources – India and world	Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc			
GS – II	Indian constitution- Amendments, acts and bills.	Legislative, executive and judicial processes.	Constitutional, non-constitutional, judicial, quasi-judicial, administrative and other types of bodies.	Federal structure and local bodies. Their powers and functions.	Government policies and various governance issues like transparency, accountability and – governance	Committees and schemes.	Non-government issues, self-help groups and role of civil society	Vulnerable sections of our society and social sector issues and initiatives.	International Relation-India and other countries, various Indian and international agreements, effects of other countries on India and international institutions.		
GS – III	Various measures to boost Indian economy-planning, policies, management	Government budgeting and issues related to budget.	Agriculture, animal husbandry and transport	Food security-measures to boost food security and food processing. Issues related to land- land reforms	Industries and infrastructure –their growth and investment model	Space and technology, IT space, robotics and computer	Disease, biotechnology and human welfare	Innovations, intellectual property, Awards, POI and other important aspects of S&T	Environment; government initiatives, various judgment, pollution, degradation and conservation efforts	Disaster & Disaster Management	Challenges to internal security, Various Security forces and agencies and their mandate. Cybersecurity; money laundering and its prevention.
GS – IV	Ethical issues related to family society, education, Corruption etc.	Ethics in public and private administration	Issues	Related laws and rules	Governance/e - Governance	Ethics in international issues	Personalities and their teachings	Other important topics			
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POLITY & GOVERNANCE

Bodily Autonomy of Women

News Excerpt

The **Kerala High Court** affirmed women's bodily autonomy by acquitting Rehana Fathima and specified that a naked female body is not inherently obscene or sexually explicit.

Pre-Connect

- Bodily autonomy can be defined as girls or women making **life's decision** about their **body** and **reproductive functions** themselves without any **external pressure**.
- According to the United Nations Population Fund's (UNFPA) Flagship State of World Population Report **2021** titled '**My Body is My Own**', it was found that nearly half of the women lacked the power to make their own decisions.

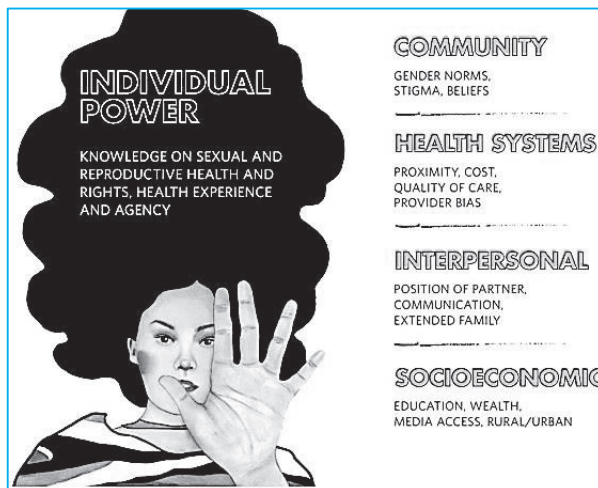
Need for Bodily Autonomy

- Bodily autonomy can be deciphered under **Article 14**, **Article 15** and **Article 21**. Article 51A (e) enjoins upon every citizen to renounce practices derogatory to the dignity of women.
- Bodily autonomy is the foundation for **gender equality**. It benefits the **health**, **education**, **income** and **safety** which further extends to the communities, countries and beyond.
- When women **live free** from violence, discrimination or coercion, they can chart their own destiny and realise their **full potential**.
- Some examples of women: **Shakuntala Devi** (Fastest Human Computation), **Mary Kom** (First woman from the country to win a medal in boxing at the Olympics), **Tessy Thomas** - Missile Woman of India (Agni-V missile project), **Tulsi Gowda** (Padma Shri 2021)-Encyclopedia of Forest.

Barriers to bodily autonomy

- ✓ **Gender stereotypes**: Men as a **provider** and women **taking care** of family is the typical example, which stops women from following their education and careers.
- ✓ **Low literacy (Around 65 per cent for females)**: It is still low especially in rural India. Schools are **far** and **infrastructure** is minimal, which hinders education.
- ✓ **Safety issues**: Trafficking, Domestic Violence, Rape, forced prostitution, honour killings and sexual harassment at workplace.
- ✓ **Health and nutrition issues**: **Medical Termination of Pregnancy Act** allows abortion till 24 weeks. After 24 weeks, permission from a medical board is required. Women are dependent on men regarding their **reproductive rights**. E.g. – when to take contraceptives, abortion, women often go for tubectomy instead of the husband going for vasectomy and practice of female genital mutilation (FGM).
- ✓ **Period poverty**: Lack of access to **sanitary products** and **awareness** about menstruation.
- ✓ **Digital Divide**: Lack of digital literacy hinders them from social media, which affects their awareness levels.

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Status of women in India

- ❖ **Gender Gap**: India ranks **127th** out of 146 countries in the Gender Gap Report 2023.
- ❖ **Political representation**: **73rd** and **74th** amendment provides for reservation of women in Panchayats and Municipalities but there is no reservation in parliament and state legislature.
- ❖ **Health**: Acc. To **NFHS-5**, Sex Ratio is 1020, Maternal mortality rate (**MMR**) is declining. Total fertility rate (**TFR**) has come down to 2, below the Replacement level of 2.1.
- ❖ **Economic**: The DivHERsity Benchmarking Report 2022-2023 by **HerKey** shows data on women's representation and diversity in corporate India. Women now make up nearly 50% of employees in surveyed companies.

CURRENT CONNECT- JULY- 23

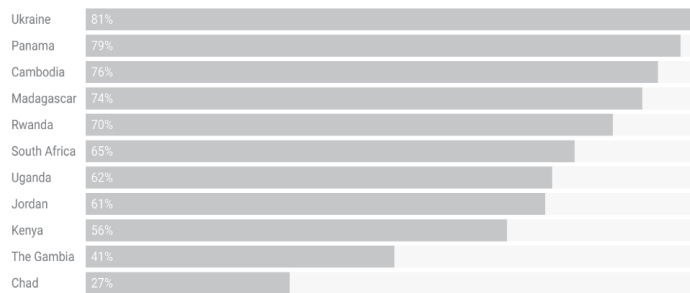
- ✓ **Double standards:** We often find men walking around without wearing shirts. But these acts are never considered to be **obscene or indecent**. The half-nude body of a man is conceived as normal and not sexualized, a female body is not treated in the same way.
- ✓ **Morality:** It depends from **person to person**. The basis of morality when it comes to women's bodies is usually under male control, which sees women's bodies as passive property, to be covered up or revealed as men decide. A **conservative, patriarchal society** wants to suppress many such actions.

Way forward

- **Breaking Norms:** A deep shift in **mindsets** and **attitudes** is required. There is a need to break the patriarchal mindset and gender stereotypes. **Sex education** can be included in the curriculum.
- **Regulations:** **Laws** should be in such a way that enable, rather than constrain, the bodily autonomy of women and as well as their human rights. Providing them safety and **empowering** them is the need of the hour.
- **Skilling:** More rigorous steps should be taken to provide market driven skills and creating more **jobs** in public and private sector.

Bodily Autonomy for Women and Girls

Proportion of women aged 15 to 49 with the power to say no to sex with husbands/partners, to decide on contraception, and to make independent decisions on health care including reproductive health services



Select countries among 57 included in 2021 UNFPA report, data from 2007-2018
Source: United Nations Population Fund • Created with Datawrapper

Image: United Nations Population Fund

PEPPER IT WITH

Navtej Johar Judgment,
Puttaswamy Judgment,
Sustainable Development
Goals, 81st Amendment Bill

Internet shutdowns in India

News Excerpt

According to a report by **Access Now**, out of 187 internet shutdowns, **84** happened in **India** (the highest number of any country in the world for the fifth consecutive year).

Pre-Connect

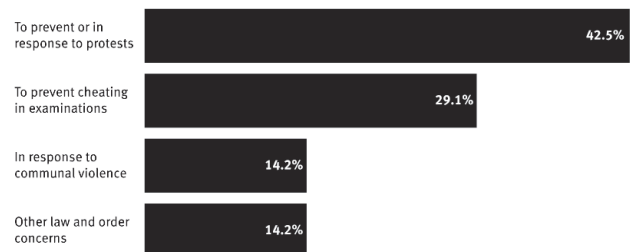
Judicial pronouncements regarding Internet shutdown:

- **Anuradha Bhasin vs. Union of India 2020:** The Supreme Court stated that an **indefinite** suspension of internet services would be **illegal**. The Supreme Court has declared access to internet a **fundamental right**. Also, internet shutdown must satisfy the **tests of necessity** and **proportionality**.
- **Faheema Shirin vs. State of Kerala:** Kerala High Court has declared that the **right to access** the Internet is one of the fundamental rights under **Article 21**.
- The Right to Access the Internet is an integral part of the Right to Education and the Right to Privacy under Article 21A and Article 21 of the Constitution of India respectively.

Types of Internet shutdowns

- **Internet Shutdown:** Restricts access to the internet in a specific region, country, or location.
- **Total Internet Shutdown:** Comprehensive blocking of internet access.
- **Social Media Shutdown:** Shutdown that targets social media platforms like Facebook, Twitter, Instagram, WhatsApp, and others.
- **Content Blocking:** Act of blocking or **filtering** certain content.
- **Throttling:** Intentional **slowing down** of internet speeds by an internet service provider (ISP) or government authority. It is used to **disrupt** internet usage without complete shutdown.

Local Authorities in India Shut Down Internet 127 Times January 2020–December 2022



Source: Replies from state governments to Right to Information requests filed by Internet Freedom Foundation; Internet Shutdown tracker <https://internetshutdowns.in/> by Software Freedom Law Center, and media sources.

Note: This number does not include internet shutdowns in the Union Territory of Jammu and Kashmir.

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Rationale behind Internet shutdowns

- **For peace and stability:** As a preventive measure by law & order agencies, to address **protests**, and **unrests**.
- **Curbing misinformation and disinformation:** shutdown can restrict the flow of unwanted information designed to **provoke** peoples and communities.
- **Checking hate speech:** **Xenophobic tendencies** can be effectively tackled and public order can be maintained.
- **National Interest:** Necessary regulation of the internet can be a reasonable choice of **sovereign** countries based on national interests.
- **Miscellaneous:** ensuring peace during **procession**, preventing cheating in **exams**, against rumour mongering, etc.

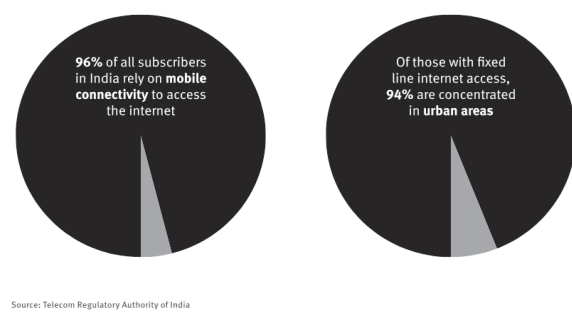
Instances of Internet shutdown

- ✓ India's longest internet shutdown was in Jammu and Kashmir where **4G mobile internet** access was shut for around 550 days, from August 2019 to February 2021.
- ✓ **West Bengal** and **Rajasthan** used internet shutdowns to prevent **protests**, **cheating** in exams and also in response to **communal violence**.
- ✓ **Punjab** was also recently placed under a **three-day mobile internet blackout** to track down a separatist leader.
- ✓ In May, **Manipur** completely blocked the internet on both **mobile and fixed line** services for the **entire month** following ethnic violence.
- ✓ In 2022, **nearly 60%** of India's shutdowns occurred in **Jammu and Kashmir U.T** due to **"political instability and violence,"** according to the Access Now's report.

Laws and Provision pertaining to Internet shutdowns

- In India, there is **no particular law** governing internet shutdowns.
- **Temporary Suspension of Telecom Services** (Public Emergency or Public Safety) **Rules, 2017**, under the Indian Telegraph Act, 1885, provide for a **temporary shutdown** of telecom services in a region on grounds of **public emergency** and give senior **bureaucrats** from the Home Ministry at the central and state levels the power to order shutdowns.
- **Under section 144 CrPC:** Order issued by an officer of the rank of **joint secretary** or above, authorized by the union or state home secretary.
- **Section 69(A) of the IT Act** (2008): To block **particular websites**, but not the whole of the internet.

Most Indians Rely on Mobile Access to the Internet



Importance of Internet Access

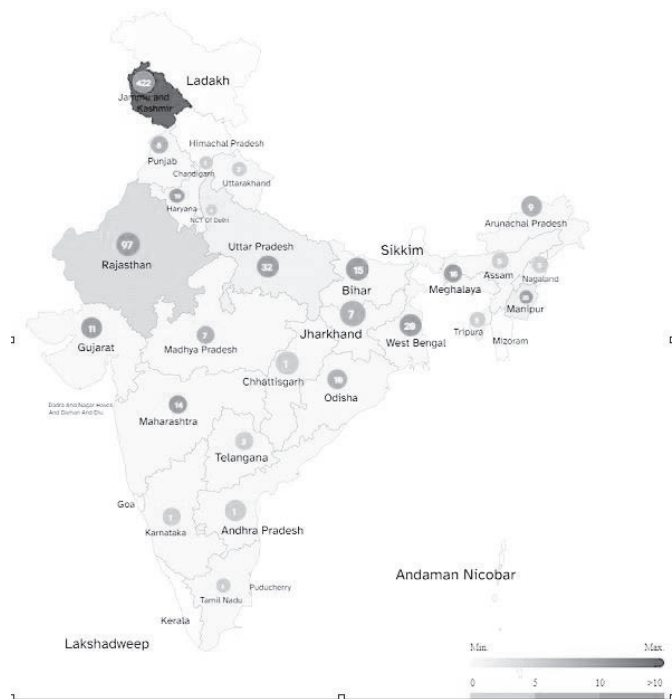
- ✚ **Digital population:** India has the world's **second largest** digital population. It has more than **800 million internet users**. Internet has become a social and economic **lifeline** of the people.
- ✚ **Bridging rural and urban divides:** It connects the country's **isolated rural** pockets, with its developing cities.
- ✚ **Employment:** It provides jobs to numerous platform workers, **Food delivery** (Swiggy, Zomato, Dunzo, etc.), **e-commerce**, Ola, Uber, **youtubers** and many others.
- ✚ **Education:** It acts as provider of education through massive open online courses (MOOC), **ed-tech sector**, **free content etc.**
- ✚ **Health:** There are various health initiatives through internet like **e-Sanjivani**, **ABHA etc.**
- ✚ **Technological Revolution:** Artificial intelligence, Quantum tech, Machine Learning are possible because of the internet, leading to **Industrial Revolution 4.0**.

Impact of Internet shutdowns

- **"No Internet Means No Work, No Pay, No Food':** Internet Shutdowns Deny Access to Basic Rights in Digital India". **Human Rights Watch** and **Internet Freedom Foundation** find that internet shutdowns impair essential activities and adversely affect economic, social and cultural rights under Indian and international human rights law.
- **Right to Food:** For subsidized food grains, **authentication** of **biometric ID** is done using the internet.
- **Right to Employment and Social Security:** Various rural income security programs require the basis to mark their **attendance online**. Geo-tagged photos are to be uploaded failing which their remuneration is not provided.

CURRENT CONNECT- JULY- 23

- **Right to Protest, dissent:** Authorities use internet shutdown to curb **democratic** protests. It hinders the political participation of people.
- **Right to Expression:** Internet shutdowns **undermine** free expression.
- **Right to Education:** Students are unable to access **MOOCs**, **e-Vidya** and other ed-tech platforms, creating a divide in education.
- **Right to Health:** People are unable to operate telemedicine services like **e-Sanjivani** affecting health parameters.
- **Digital Transactions:** Various businesses relying on internet connection are held back and banking activities get affected, leading to significant losses in the economy, thereby greatly exacerbating **inequalities**.
- **Creates trust deficit:** It creates a trust deficit between the **citizens** and the **government**. A Parliamentary Standing Committee has said that there is no evidence that internet shutdowns help maintain law and order. It works as a form of **collective punishment**.
- **Digital Divide:** India Inequality Report 2022: Digital Divide by **Oxfam** states that approximately **70 per cent** of the population has **poor or no connectivity** to digital services. Blackout further exacerbates the digital divide creating inequalities.



Ethical Dilemma-Rights vs Security

- **Rights issue:** Internet shutdown **violates** the right of individuals like the right to food, work, social security, education, health, etc.
- **Security issue:** Meanwhile states have the **obligation** of providing peace and stability, curbing misinformation and disinformation, checking hate speech and maintaining national interests.
- **Way out:** A **balanced approach** should be followed in this ethical dilemma so that the rights and national security should go **hand in hand**.

Way Forward

- **Last resort:** Authorities should **refrain** from Internet shutdown. It should only be used as a measure of last resort.
- **SC guidelines:** Supreme Court directions of using the **test of necessity** and **proportionality** should be followed while ordering internet shutdowns.
- **Public scrutiny:** Proper **reasons** for internet shutdown, **time** of internet shutdown and **other viable options** available instead of internet shutdown should be made out by the government for public scrutiny.
- **Regulation:** Proper **law** regulating the internet shutdown should be put in place by the government.

PEPPER IT WITH

Digital authoritarianism, Anuradha Bhasin versus Union of India, Freedom of Speech

Uniform Civil Code

News Excerpt

The **22nd** Law Commission has invited views and ideas on the UCC.

Pre-Connect

UCC stresses upon the idea of having a **common** code of **personal laws** (inheritance, marriage, divorce, child custody, and alimony) for people of **all religions**. It aims to replace the existing diverse personal laws that vary based on religious affiliations.

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21st Law Commission

- Underlining that the Uniform Civil Code is **"neither necessary nor desirable at this stage"**, the 21st Law Commission argued for reform of family laws of every religion.
- It favored **"equality within communities"** between men and women rather than **"equality between communities"**.

Supreme Court Judgments

- Shah Bano case** (1985): SC stated "A common Civil Code will help the cause of national integration by removing disparate loyalties to laws which have conflicting ideologies".
- Sarla Mudgal v Union of India** (1995): SC said that the **need** for a UCC "can hardly be doubted".

Constituent Assembly and Constitution

- The Constituent Assembly witnessed a lengthy discussion on a common civil code while adopting it as a directive principle.
- When the said Article was being discussed, several **members** (Mohamad Ismail-Madras, Naziruddin Ahmad-West Bengal) suggested **adopting a common civil code** with a **caveat** that it would apply to citizens with **prior consent**.
- KM Munshi** said that Hindus themselves have their separate laws.
- Dr. B.R. Ambedkar** underlined the possibility that a future Parliament could make provisions for applying the UCC in a **"purely voluntary"** manner.
- Article 44** of the Constitution lays down that the state shall endeavor **to secure a UCC** for citizens throughout the territory of India.

Arguments in favor

- UCC is a **constitutional objective** aimed at ensuring **equitable justice** for all communities. It will promote the **integration** of India by establishing a shared platform for diverse communities.
- In different rulings, like the famous Shah Bano case from 1985, Sarla Mudgal case (1995) and Paulo Coutinho vs. Maria Luiza Valentina Pereira case (2019), the **Supreme Court** has asked for the **UCC to be in place**. Kesavananda Bharati case (1973) SC stated that a UCC "is essentially desirable in the interest of the integrity, and unity of the country".
- In January 2023, the Supreme Court upheld the constitutional jurisdiction of **states** to establish **committees** to examine the implementation of the **Uniform Civil Code**. E.g. **Uttarakhand Govt.** and **Gujarat Govt.**
- To ensure equitable dispensation of **justice to women** from diverse religious backgrounds, encompassing matters such as marital conflicts and property inheritance disputes, consent, the age of marriage, divorce, guardianship and custody of children.
- Several **Muslim countries**, including Morocco, Tunisia, and Indonesia, have **implemented** laws that promote gender equality.
- The idea of UCC is not new to India, it is already in existence in Goa.

Arguments against UCC

- Sixth Schedule**, provides certain protections to some states, the **21st Law Commission** paper said that while framing laws, it must be remembered that **cultural diversity** cannot be compromised.
- UCC is perceived as an **infringement** upon the **constitutional right** to freely exercise one's chosen **religion**. **Article 25**, grants each religious collective the entitlement to autonomously administer its internal matters. **Article 29** defines the right to conserve distinctive culture.
- The 21st Law Commission** suggested that UCC is presently deemed **unnecessary** and **not recommended**. It emphasized on reforming family laws across various religions to ensure gender equity. It expressed its support for achieving **"equality within communities"** between men and women, as opposed to pursuing **"equality between communities"**.
- The inclusion of **Personal laws** in the **Concurrent List (Entry No. 5)** appears to be motivated by the desire to maintain legal diversity. If the primary concern had been the establishment of uniformity in laws, personal laws would have been incorporated into the Union List.
- Tribal cultural traditions** and **religious practices** engage in polygamy and polyandry, which would potentially fall under the purview of a UCC. The Adivasis possess distinct personal laws and there is concern that these practices may also face **prohibition**.
- Hindu Undivided Family**, legal entity that allows Hindu taxpayers to claim certain benefits, this **beneficial tax treatment** will be **scrutinized** on grounds of equality before tax law and uniformity in application across religions.

Way forward

- It is imperative to ensure that certain groups or **marginalized segments** of society are not subjected to **disadvantageous** treatment during this endeavor.
- UCC, if implemented can be made **voluntary** and gradually when citizens are accepting it, further changes can be made accordingly.
- Communities can come forward and give assurance to **reform the regressive laws**.

PEPPER IT WITH
DPSP, Just Society, Law
Commission of India

Criminalisation of Politics

News Excerpt

Recently, the **Association for Democratic Reforms (ADR)** wrote a letter to the Election Commission of India (ECI) urging the Commission to take action against political parties that have failed to disclose the criminal backgrounds of candidates they have nominated in various assembly elections conducted in recent years.

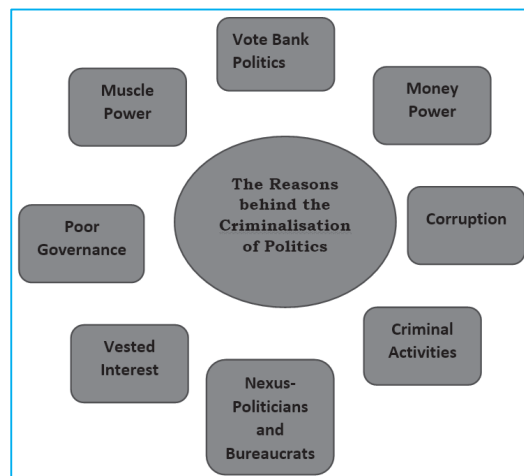
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Pre-Connect

- The **criminalisation of politics** implies the participation of criminals in politics which means that persons with criminal background contest in the election and get selected as a member of parliament or state legislature.
- It is said that the level of politics had reached a stage where the **lawmakers became the lawbreakers**.
- In a democratic country like India, the increasing **nexus between criminals and politics** threatens the survival of true democracy.
- It is now becoming a trend that people with criminal backgrounds have **more influence in politics** than people without criminal backgrounds.
- According to ADR, after the **2019 Lok Sabha elections about 43% of the newly-elected MPs had pending criminal cases against them**. Alarming, nearly 30 per cent of these candidates were **accused of grave offences**, including rape and murder.

The Association for Democratic Reforms (ADR)

- The ADR is an **electoral watchdog** established in 1999 by a group of professors from the **Indian Institute of Management (IIM) Ahmedabad**.
- It wrote to the Election Commission **seeking action against parties** that fail to publish details of criminal antecedents of candidates as per orders of the Supreme Court.
- For years, activists and independent electoral watchdogs like ADR have been raising concerns over political parties fielding **candidates with criminal antecedents**.
- ADR is seeking strict action to be initiated against the defaulting political parties which had contested assembly elections in the last couple of years.
- Best Practices:** If someone has a murder or rape case in United States, such individuals would be excluded from contesting elections.



Legal provisions for disqualification of criminal candidates

- ❖ In a decision of the **Supreme Court**, the **Representation of People Acts (RPA) 1951** was amended by inserting **section 33-A** which requires a candidate to **furnish information** on whether S/he is accused of any offense with imprisonment of two years or any pending cases in which charges have been framed and whether they been convicted for one year or more.
- ❖ In **Public Interest Foundation vs. Union of India (2019)**, Supreme Court ordered political parties to publish the criminal records of their candidates on their websites, social media handles and newspapers.
- ❖ The RP Act 1951 mentions the **criteria to disqualify** a person to contest the election:
 - **Section 8** of the Act says that a person punished with a jail term of more than two years cannot contest an election for six years after the jail term has ended.

- The law **does not bar any person** who has criminal cases pending against them. Therefore, the disqualification of candidates with criminal backgrounds depends on their conviction.
- ❖ The **Law Commission in its 179th report** recommended:
 - People with criminal backgrounds should be disqualified for five years or until acquittal.
 - Person who wants to contest the election must furnish details regarding any pending case, with a copy of the FIR/complaint, and also furnish details of all assets.

Challenges Associated with the Criminalisation of Politics

- **Wilful Disobedience:** According to ADR, political parties are flouting the Supreme Court's orders and the ECI's subsequent directions. Many political parties did not have functional websites to publish the information, and those that did, had not maintained the information and/or had inaccessible website links.
- **Weakening of democratic values:** The presence of criminals in politics undermines the core principles of democracy, such as accountability, transparency, and the rule of law.
- **Governance issues:** Criminal politicians often prioritize personal gains over the welfare of the public. For example, some **politicians are facing criminal charges** due to their association with corrupt practices, diversion of public funds for personal benefit etc.
- **Increase in crime rates:** The association between criminals and politicians can **embolden criminal activities** and create a sense of impunity, leading to an increase in crime rates in some areas.
- **Deterrence to honest candidates:** The presence of criminals in politics can discourage honest and capable individuals from entering the political arena, as they might perceive it as a hostile and corrupt environment.

Way Forward

- **Electoral Reforms:** Strengthening the electoral process is crucial to preventing criminals from entering politics.
 - Introduce reforms to increase transparency in political **party funding**.
 - Implement recommendations from the Election Commission to curb the use of **money and muscle power** during elections.
- **Fast-track Courts:** Establish more special fast-track courts to expedite the trial of cases involving politicians with criminal backgrounds.
 - **Allocate funds and resources** to set up these courts and ensure their effective functioning.
 - Collaborate with the judiciary to **prioritize cases** involving politicians to ensure timely justice.
- **Decriminalisation of Politics:** Enact legislation to bar individuals facing serious criminal charges from contesting elections.
 - Collaborate with political parties to **build consensus on electoral reforms** and the selection of candidates with clean backgrounds.
 - Propose amendments to the Representation of the People Act to **disqualify candidates** facing charges of heinous crimes.
- **Public Awareness Campaigns:** Raise awareness among citizens about the negative consequences of electing candidates with criminal backgrounds.
 - Launch nationwide campaigns to **educate citizens** about the importance of voting for clean and ethical candidates.
 - Utilize **social media and other communication channels** to disseminate information about criminal backgrounds of candidates.
- **Political Party Accountability:** Hold political parties accountable for fielding candidates with criminal records.
 - Introduce **penalties** for political parties that nominate candidates with criminal backgrounds.
 - Set up an **independent body to monitor** the criminal antecedents of candidates and initiate actions against parties that violate rules.

PEPPER IT WITH

RP Act 1951, Election Commission of India, Electoral Violence

Splits in Political Parties

News Excerpt

A recent split **in the Nationalist Congress Party (NCP)** has again raised the issue of splits in Political Parties.

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Pre-Connect

Elections Symbol

- An election symbol is a **standardised identification** associated with the candidate which helps voters to identify which political party candidate belongs.
- The **regulation, reservation and allotment** of electoral symbols is entrusted with Election commission of India (ECI) and done in accordance with **Election Symbols (Reservation and Allotment) Order, 1968**.
- Rules **classify Election symbols** as reserved and free.
 - Reserved:** Symbol reserved for a recognised political party for exclusive allotment to contesting candidates set up by that party.
 - Free:** Symbol other than a reserved symbol.
- The Election Symbols Order **empowers ECI to decide disputes** among rival groups or sections of political parties who stake claim over the party name and symbol.
- The idea behind these symbols is to **facilitate voters** in voting even if they are illiterate.

How EC decides on splits within parties

- The Election Commission of India (ECI) fundamentally draws its power of superintendence, direction and control of elections from **Article 324 of the Constitution**.
- Parliament has accorded specific powers and duties to the ECI through the **Representation of People Act, 1951**. The Act, through Section 29A, gives ECI the power to register political parties.
- Splits in India's political parties, over issues of leadership, are not uncommon.
- In case of a split in a political party outside the legislature, the **Symbols Order 1968**, states:
 - Commission is satisfied that there are **rival sections or groups** of a recognised political party each of whom claims to be that party.
 - Commission should take into **account all the available facts** and circumstances of the case and hear their representatives.
 - Then **it may decide** that one such rival section or group or none of such rival sections or groups is that recognised political party.
 - The decision of the Commission **shall be binding** on all such rival sections or groups.
- This applies to disputes in recognised national and state parties (like the Shiv Sena).
- For splits in **registered but unrecognised parties**, the ECI usually advises the warring factions to resolve their differences internally or to approach the court.
- The **first case** to be decided under the 1968 Order was the first **split in the Indian National Congress in 1969**.

Methods of Dealing with Party Splits and Defections

- The **Tenth Schedule** to the Constitution does **not allow a legislator to switch party** loyalties through voting against party direction on the floor of the House or through actions outside the House.
 - Immunity** is available to defectors when **two-thirds or more legislators** in that House merge with any other party.
- After a close reading of the provisions of the Tenth Schedule, the Supreme Court in **Subhash Desai vs. Principal Secretary, Governor of Maharashtra (2023)** states that:
 - Only the political party can appoint the leader of the legislature group and the whip.
 - Drew a distinction between a political party and a legislature party.
- Before 1968, the EC issued notifications and executive orders under the **Conduct of Election Rules, 1961**.

Case Study: Nationalist Congress Party Split

- Effectively **splitting NCP into two**, Ajit Pawar switched sides with the majority of party MLAs to join Eknath Shinde's government in Maharashtra.
- Ajit's coup caps a **long-running tussle** in NCP:
 - First, NCP President Sharad Pawar said that he would step down as the party chief.
 - Then, he said he would continue as party chief and appointed two working presidents, his daughter Supriya Sule and Praful Patel.
 - Ajit and his son Parth Pawar were being sidelined in NCP since 2019.
- In a **pre-dawn coup**, Ajit had taken oath as the Deputy Chief Minister of Maharashtra with Devendra Fadnis as CM. That government, however, lasted for only three days.
- Recently, after being **sworn-in as the Maharashtra Deputy Chief Minister**, Nationalist Congress Party (NCP) leader Ajit Pawar removed his uncle, Sharad Pawar, from the post of party president.
- He wrote to the ECI seeking **recognition of his faction as the real NCP**.

- The most high-profile split of a party before 1968 was that of the Communist Party of India (CPI) in 1964.
- The ECI recognised the faction as CPI(M) after it found that the votes secured by the MPs and MLAs supporting the breakaway group added up to a significant amount in states.
- The ECI felt that merely having MPs and MLAs is **not enough to claim political party**, as the elected representatives had fought and won polls on tickets of their parent (undivided) parties.
 - It **introduced a new rule** under which the splinter group (other than the group that got the symbol) had to register itself as a separate party, and could lay claim to national or state party status only on the basis of its performance in the state or the central elections after registration.

Contemporary Issue

- ✓ The **novel method in the case of Shiv Sena** was the defectors claiming that they were the party and hence, there was no question of defection.
- ✓ According to the Supreme Court in **Sadiq Ali v Election Commission of India** (1971), in such cases the test of majority, test of party constitution, and the test of aims and objectives can be used.
- ✓ In Shiv Sena's case, the **ECI rejected the latter two tests**, because both factions were claiming to act in furtherance of the aims and objectives of the party, and the **party constitution** did not promote intra-party democracy.
- ✓ The **NCP's case is a curious one**, according to reports, both factions have passed resolutions expelling or suspending members of the other faction, and claiming to be the party.

Need for Inner-Party Democracy

- **Fair and transparent internal functioning** of parties ensures that democracy functions with the people too, since Indians' perception of politics is so closely tied to one's perception of party politics.
- **Bridge Trust deficit and prevent Hero Worship**: Inner-party democracy enhances the fair and transparent procedures in selecting leaders within political parties which counters a general trust deficit amongst the public. In absence of such provisions, a culture of Hero Worship gets promoted in a political party. **Dr. B.R. Ambedkar** considers such a situation as a sure road to degradation and eventual dictatorship.
- **Promotes Inclusive Representation**: Opaque nature of selecting party candidates also runs the risk of excluding marginalized groups. It leads to a denial of equality of status and opportunity, which is entrenched in India's Constitutional scheme.
- **The criminalization of Politics**: The transparency deficit in selecting candidates within political parties becomes a breeding ground for criminalization in Indian politics. With candidatures based on the whims of certain political heads, mere winnability becomes the sole criterion for fielding certain candidates, as those with significant money and muscle power can easily indulge in gerrymandering of the voter base.
- **Safeguard against dynastic politics**: It is integral for promoting freedom of speech and dissent within the political parties. It prevents the breeding of dynastic politics and political nepotism.
- **Counters factionalism**: Democratizing political parties can also work as a safety valve against factionalism and split into parties. Various incidents of internal party rivalry have culminated in splits.

Way Forward

- ✚ This **conundrum can be solved** by tweaking the law in two ways:
 - A **party constitution should be mandatory** that lays down procedures beyond the existing requirement at the time of registration under Section 29A outlining the role of the political party in relation to the legislature

Case Study: Shiv Sena Split

- ❖ The **Shiv Sena split** after Eknath Shinde led a rebellion by a group of legislators against Thackeray's leadership.
- ❖ It led to the collapse of the previous Maharashtra government that was run in **coalition by the Shiv Sena, the NCP and the Congress**.
- ❖ Both factions, claiming to be the **real Shiv Sena**, had approached the Election Commission seeking the party's name and the electoral symbol.
- ❖ The poll panel **recognised the Shinde faction as the real Shiv Sena** and allocated the party name and the bow and arrow symbol to his group.
- ❖ Thackeray's faction was allocated a symbol of a flaming torch and named the Shiv Sena (**Uddhav Balasaheb Thackeray**).

party, removal and suspension of members, leadership challenges, and involvement of members in questions of leadership.

- The ECI must be empowered to suspend registration or **deregister a party on non-compliance** with basic requirements.

- ✚ **Settle disputes within factions**, including questions of leadership as seen often in the UK within a political party.
- ✚ Providing **ways of expression of dissent** and potential change of guard would protect a political party from breaking apart through subterfuge.
- ✚ An **empowered ECI** can ensure the enforcement of the rules to promote internal party democracy.
- ✚ The **170th Law Commission Report** had recommended the addition of a **Part IVC to the Representation of People Act** to regulate the internal functioning of parties.

PEPPER IT WITH
Anti-Defection Law (Tenth Schedule), Political Parties

LGBTQIA+ Rights in India

News Excerpt

A five-judge Constitution Bench of the Supreme Court recently reserved judgment on a batch of pleas seeking legal validation for same-sex marriage.

Timeline of the LGBTQIA+ Movement in India

- 1990-91, the **LPG reforms** ushered in **western influences** viz. western **NGOs**, sought equal rights for LGBT communities. With the rise of **HIV AIDS** largely in the gay community, the demand for programmes and policies to limit HIV were **mainstreamed**.
- In 1999, Kolkata hosted India's first Gay Pride Parade, **Calcutta Rainbow Pride parade**.
- With the increased **awareness** about **LGBT rights**, the issue was challenged in the courts. Various judgments were passed, increasing the **acceptance** of LGBT community thereon.
- In 2015, MP **Shashi Tharoor** introduced a **private member bill** in the Parliament.
- In 2022, MP **Supriya Sule** introduced a private member Bill in Lok Sabha to legalize same-sex marriage in the country.
- The **first codified legislation** on homosexuality, **Section 377** of the **IPC** prohibited the LGBT individuals for "**unnatural offence**" and having "**carnal intercourse against the order of nature**".
- Though the **Right to Equality** was granted under **Article 14** but **homosexuality**, remained a **criminal offence** under section 377.

Judgments related to LGBTQIA+ Rights

- **Naz Foundation vs. Government of NCT, Delhi**: High Court stated that Section 377 violates Articles **14, 15 and 21**.
- **National Legal Services Authority vs. Union of India, 2014**: SC declared transgenders as the '**Third Gender**'. Their fundamental **rights** were affirmed and **reservations** in education and jobs were granted.
- **Justice K.S. Puttaswamy vs. Union of India 2017**: SC ruled that **Right to Privacy** is intrinsic to life and liberty and thus, comes under **Article 21**. SC declared that **bodily autonomy** was an integral part of the right to privacy. This bodily autonomy has within its ambit **sexual orientation** of an individual.
- **Navej Singh Johar v, Union of India 2018**: **five-judge bench** of SC held **Section 377** to be **unconstitutional**. The decision relied on the Puttaswamy judgment.
- **Deepika Singh vs Central Administrative Tribunal 2022**: Ruling recognised "**atypical**" families, including **queer marriages**.

Laws and Provisions related to LGBTQIA+

There are **no specific law** covering **whole** of LGBTQIA+ community.

- **Transgender Persons (Protection of Rights) Act, 2019**
- National **Council** for Transgender Persons
- **Garima Greh**: To provide shelter, food, medical care and recreational facilities to transgender persons.
- National **Portal** for Transgender Persons
- **Skill development** training to transgender beneficiaries through **PM-DAKSH**.
- **SMILE** Scheme, Ministry of social justice and empowerment.

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Constitutional safeguards

- **Preamble:** Justice (social, economic, and political) and **Equality of status**.
- **Article 14** (Right to Equality) provides for **rule of law** and **equal protection of the laws**.
- **Article 15 and 16** (Right against **Discrimination** and Equality of **Opportunity**).
- **Article 21** Rights to **Life** and Personal **Liberty**.
- **Article 23** Right against **Exploitation** and prohibits acts like human trafficking and beggary.

International scenario

- **Yogyakarta principles:** It is a Document about human rights regarding **sexual orientation** and **gender identity**. Yogyakarta Principles **plus 10** in 2017, expanded to include **LGBTIQ+ people**.
- **International Labour Organization (ILO):** Released a document on **"Inclusion of LGBTIQ+ persons in the world of work"**. It recommends ensuring equal **opportunities** and treatment for LGBTIQ+ persons at **work**.
- **Ireland, USA, Brazil, Canada, France**, etc., have legalized same sex **marriage**. 12 out of the G20 countries, including the EU, have permitted same-sex marriages.
- Recently, **Uganda** passed **Anti-Homosexuality Act of 2023**, which criminalizes same-sex conduct, including a potential death penalty for those convicted of "aggravated homosexuality."

Challenges faced by LGBTQIA+ community

- **Ostracization:** LGBT people are ostracized by **society**. Village **medics and baba's** often prescribe quack methods and **conversion therapy** to cure homosexuality.
- **Discrimination:** In employment, educational institutes, within families and society, severely affecting their overall **wellbeing**.
- **Identity crisis:** They often find themselves in selecting an identity due to the difference in **gender assigned** at birth and **gender of expression**.
- **Social Stigma:** Many Families refuse to accept them. They generally face difficulty in property inheritance and adoption.
- **Political Under-Representation:** Severely underrepresented in politics, vicious circle of not being mentioned in **the policies and programmes**.
- **Drug Abuse:** They often fall prey to drug abuse and drug **cartels**.
- **Victims of Hate Crimes:** Because of the lack of social acceptance from society and families.

Issues in Including LGBTQIA+ in Indian society

- **Civil law system:** Civil law of **marriage, adoption, divorce** will need retrofitting. In a gay or lesbian marriage, one cannot be differentiated as **husband and wife**. Moreover, if they get divorced who will be getting **custody of child** and **alimony**. Single men cannot adopt a girl child according to the current laws, should the same be applicable for bisexuals. Further, **adoption** of LGBT kids would be another issue, what if no one adopts them.

Transgender Reservation

- ❖ The Maharashtra government informed the Bombay High Court that providing additional reservations to transgender persons in education and public employment would be difficult due to existing reservations for various communities in India.
- ❖ Transgender persons in India have been advocating for horizontal reservation (within categories like OBC) to address historical marginalization and socio-economic challenges they face.
- ❖ The National Legal Services Authority of India (NALSA) v Union of India (2014) case recognized transgender persons as socially and educationally backward and entitled to reservation, but it did not specify whether it should be vertical or horizontal reservation.
- ❖ A study conducted by the National Human Rights Commission revealed that only 6% of transgender people were formally employed in 2017, with many engaged in informal work like begging and sex work.
- ❖ Arguments in favor of providing reservations to the transgender community include promoting social and economic empowerment, representation, equal opportunities, addressing historical injustice, and fulfilling international obligations.
- ❖ Arguments opposing reservations for transgender individuals include concerns about meritocracy, dependency, implementation challenges, negative stigmatization, limited overall impact, and divisive nature.
- ❖ Going forward a few measures can be adopted such as conducting surveys to identify transgender individuals' needs, allocating a suitable quota for them in various sectors, raising awareness about transgender rights, and strengthening anti-discrimination laws.

- **Education:** **Sex education** is not provided in Indian education system. **Hostels** and dormitories of both genders are separate. **Reservation** cannot be more than 50% according to SC judgment, how will LGBTQIA+ will be given reservation.
- **Employment:** There are **different tax limits** for both the genders. **Sexual Harassment** at workplace will be an issue, how can the different categories of LGBTQIA+ be identified. **Maternity leaves** given to women is more while **paternity leave** given if any, is less.
- **Social Benefits:** Maternity benefits program, **old age pension** varies for both the genders. Which category of people will be identified under **nutrition for adolescent girls** scheme, will be another hurdle.
- **Gender fluidity:** Another major issue is with the **changing nature** of gender fluidity in LGBTQIA+.
- Around **65% population** is still residing in **rural areas** in India. There is a lack of exposure in rural setup. It will take time for them to accept the notion of LGBTQIA+.

Potential benefits of providing rights to LGBTQIA+

- **Capability Approach:** Recognizing rights will lead them towards **self-confidence**, overcoming their fear and insecurity and they will live openly and safely.
 - **Acceptance:** It will lead to their acceptance in family and society. Prevailing laws always have an **influential effect** on society. Even if their family is abandoning them then their rights will help them to get what they deserve.
 - **Opportunities:** It will help them in getting **education** and their career prospects would be brighter.
 - **Social Development:** Their individual development will uplift the social indicators of health viz. Resolving **mental health** issues, **HIV-AIDS**, **drug abuse**, **beggary**, etc.
 - **Economic Development:** When various sections of the society excel, the nation moves towards inclusive growth. **GDP**, **poverty**, **unemployment** indicators will rise.
 - **Unity in diversity:** It will uphold the **mantra** of India "unity in diversity",
- ### Way Forward
- **Education and Sensitization:** Introducing **sex education** in schools, sensitization of **community** will go a long way in changing the attitudes towards LGBTQIA+ community.
 - **Anti-Discriminatory Law:** That recognizes the protection of the **rights** of LGBTQIA+ community and criminalizes their harassment or **discrimination**.
 - **Government bodies**, especially related to Health, and Law and Order need to be **sensitised** and should be made **aware**.
 - **Yogyakarta Principles** should be adopted in true letter and spirit.
 - LGBTQIA+ community **lacks** many rights like **marriage**, **adoption**, **surrogacy** etc. which gradually, if not sooner should be granted to the community.

Telangana High Court striking down the Telangana Eunuchs

- ❖ The Telangana Eunuchs Act was initially enacted in 1919 in the Hyderabad Nizam's dominions and applied to eunuchs.
- ❖ The Act defined eunuchs as impotent males and imposed restrictions on their clothing and behavior in public places.
- ❖ In V. Vasanta Mogli vs. The State of Telangana, three Public Interest Litigations (PIL) were filed challenging the Act's constitutionality and seeking rights and protections for the transgender community.
- ❖ The Telangana High Court struck down the Act, stating it violated the right to equality (Article 14) and the right to life and personal liberty (Article 21).
- ❖ The Act's definition of eunuch was deemed contrary to the definition of transgender persons under the Transgender Persons Act of 2019 and the Supreme Court's interpretation of the term "transgender."
- ❖ The court compared the Telangana Eunuchs Act to the oppressive Criminal Tribes Act of 1871 and found it to be similarly discriminatory and criminalizing.
- ❖ The court directed the state government to provide pension to eligible transgender individuals under the Aasara Pension Scheme and recognized the transgender community as socially and economically backward.
- ❖ The court highlighted the lack of reservation for the transgender community despite a Supreme Court directive in the 2014 NALSA judgment.
- ❖ The decision to strike down the Act is seen as a step towards empowering the transgender community and promoting their inclusion in society, in line with recent Supreme Court judgments.

PEPPER IT WITH

Lesbian, gay, bisexual, transgender, queer or questioning persons or the community

SOCIAL ISSUES

Domestic Violence and Climate Crisis

News Excerpt

Recently, a study published in **JAMA Psychiatry** has revealed a distressing connection between climate change and intimate partner violence (IPV) in **South Asian countries**.

Pre-Connect

According to U.N. Women's "Tackling Violence against Women and Girls (VAWG) in the Context of climate change report":

- Violence against women and girls (VAWG) is a widespread human rights violation as it affects 1 in 3 women.
- In 2020 alone, 81,000 women and girls were killed, with a woman or girl being killed in their home every 11 minutes.
- **Climate change worsens VAWG and has detrimental effects on society.**
- **The COVID-19 epidemic brought attention to the growth in violence amid emergencies.**
- Environmental human rights advocate who are the women, that are particularly vulnerable.
- Besides the U.N. Women report, **the Intergovernmental Panel on Climate Change's Sixth Assessment Report** made the first mention in its report that **"women, girls and LGBTQI people are at increased risk of domestic violence, harassment, sexual violence, and trafficking"** during and following intense weather conditions.

Violence against women and girls (VAWG) and climate change are two of the most pressing global emergencies of our time.

Key Highlights of the Study

- In **India, Nepal, and Pakistan**, the study examined data from over 200,000 girls and women between the ages of **18 and 49**.
- The study found a link between **rising temperatures and an increase in IPV cases**.
- With physical violence increasing by **8%** and sexual violence increasing by **7.3%** for every **1°C rise in temperature**, India in particular saw the biggest rise.
- In contrast to Nepal's 14.8 per cent and Pakistan's 5.9 per cent, **India is predicted to have a startling 23.5 per cent spike in IPV instances by 2090**.

About Intimate Partner Violence

- ✓ A partner's **infliction of emotional, physical, or sexual harm** is included in the category of intimate relationship violence, which also includes other types of abuse.
- ✓ While **physical violence** comprises actions like shoving, slapping, kicking, and more, emotional violence contains insults, humiliation, and threats.
- ✓ **Unwanted or coerced intercourse** is considered sexual violence.
- ✓ According to the study, **physical violence (23 per cent)** was more common as temperatures increased, proceeded by **emotional violence (12.5 per cent)** and **sexual violence (9.5 per cent)**

The Effects of Climate Change on Gender

- Gender-based violence is made worse by climate change by **increasing power disparities** that are firmly ingrained in patriarchal organizations.

CURRENT CONNECT- JULY- 23

- Climate-related stressors amplify financial suffering, **subvert gender expectations**, and promote aggressive behaviour.
- Extreme weather events increase the **vulnerability of women and girls, particularly those in low- and middle-income nations, to domestic violence, harassment, sexual assault, and human trafficking.**

Loss of Control and Economic Distress

- Extreme heat impacts crop** results and lowers migrant labourers' ability to make a living. Men who are **unable to support their families** owing to climate-related issues may become enraged, aggressive, or violent for reasons related to gender inequity.
- The loss of control and economic difficulties** make the already widespread acceptance of violence against women worse.
- According to studies on Indian natural catastrophes, including the cyclones, droughts, and tsunami of 2004, women were more frequently the targets of physical, psychological, and sexual abuse.
- These climatic occurrences put **men's traditional roles as providers in jeopardy, making males feel insecure and more likely to use violence.**

Way forward

- ⇒ Recognizing the **gendered aspect of climate change** and its effects is crucial in the fight against intimate partner violence caused by it.
- ⇒ There is an urgent need for **gender-inclusive climate action** to address the intricate relationship between social risks and climate change.
- ⇒ **The establishment of support networks, financial resilience development, and IPV infrastructure reinforcement** are examples of preventative approaches.
- ⇒ **Protecting vulnerable people** and communities depends on gender-sensitive disaster management and climate action.
- ⇒ One initiative aiming at reducing the financial challenges that contribute to IPV is **Gujarat's innovative heat insurance programme**, which compensates for lost revenue during extreme heat occurrences.
- ⇒ **Generate data to understand the impact of climate change on VAWG** and risk factors.
- ⇒ **Increase investment in flexible and adaptive approaches to VAWG prevention and response**, prioritizing funding for women's rights and civil society organizations.

PEPPER IT WITH

Gender Equality, Global Warming, The Immoral Traffic (Prevention) Act, 1956, Women Reauthorization Act

Double Burden of TB and Diabetes Mellitus

News Excerpt

India has been experiencing the double burden of two debilitating diseases – **type 2 diabetes** (a.k.a. diabetes mellitus, DM) and **tuberculosis (TB)**. Currently, India has around **74.2 million** people living with diabetes while TB affects **2.6 million** Indians every year.

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Pre-connect

- Diabetes Mellitus:** It is a disorder in which the body does not produce enough or respond normally to insulin, causing blood sugar (glucose) levels to be abnormally high.
- Tuberculosis:** It is an infectious disease that most often **affects the lungs** and is caused by a type of bacteria. It spreads through the air when infected people cough, sneeze, or spit.

Global burden of TB:

- 30 high burden nations were responsible for 87 per cent of new TB cases in 2019, with two-thirds of the cases coming from India, Indonesia, China, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa.
- In India, there were **1.8 million** cases of TB in 2020, down from 2019.
- MDR-TB (Multidrug resistance TB)** still poses a security danger and a public health problem since it is resistant to the two most effective first-line anti-TB drugs.
- Another problem was **XDR-TB (Extensively drug-resistant TB)**, which was resistant to several very potent anti-TB drugs.

Impact of DM on TB

- DM weakens the **immune system**, **delays the clearance of TB germs**, and **prolongs the course of treatment**.
- The risk of TB infection rises due to the **altered lung defences** caused by hyperglycemia in DM. Additionally, DM affects the signs and symptoms of TB, radiographic results, therapeutic methods, and results.
- People who have both TB and DM have **larger bacterial loads, and cavitory lesions** in the lower lung fields, and are more susceptible to TB.
- The TB-DM group has **poorer lung function** than the TB non-DM group even after finishing TB treatment.
- Compromised immune responses, protracted treatment, increased infection risk, decreased lung function, and subpar treatment outcomes are some of the effects.

How does DM affect people with TB?

- People who have both tuberculosis (TB) and diabetic mellitus (DM) experience **severe lung damage**, including the presence of **enormous cavities**. The persistence of inflammation after TB therapy demonstrates the chronic diseases' long-lasting impact.
- DM directly affects the outcomes of those affected by both diseases. However, a recent study reported that a higher fraction of unfavourable TB treatment outcomes occurred among people with **low body-mass indices and with low glycated hemoglobin levels** (better known as HbA1c) compared to people with **low BMI and high HbA1c**.
- Nutritional status has a significant impact on how well TB patients respond to treatment, supporting the association between undernutrition and TB.
- According to a different study carried out in Pune, **DM is an independent risk factor for early mortality of people with both TB and DM**. It also showed that the most common cause of deaths were respiratory complications (50%) followed by events related to cardiovascular disease (32%) in those affected with TB DM as compared to TB only (27% and 15%).
- These results demonstrate the considerable influence of DM on the mortality results in TB-DM cases.

Challenges and consequences:

- The coexistence of DM and TB has major ramifications for patients, the healthcare system, families, and communities.
- The likelihood of **adverse TB treatment outcomes**, such as **treatment failure, recurrence, and mortality**, is also increased by DM.
- Furthermore, although TB by itself is not a common cause of death, TB and DM patients regularly pass away from **respiratory issues**.
- The necessity of **addressing undernutrition** in TB and DM patients is brought home by the significance of nutritional status in affecting treatment outcomes.

Way forward:

- Providing **integrated and patient-centered care**, which includes coordinated diagnosis, bidirectional screening, patient education, and customised care regimens, is crucial for managing the dual burden of DM and TB.
- Patient well-being and treatment outcomes are improved by **comprehensive care for TB, DM, and related comorbidities**. All parties must be committed, resources must be mobilised, and policies must be adjusted to achieve this aim.
- For the development of successful projects and the formation of well-informed judgments, **more research, data accessibility, and community awareness** are all advantageous.
- To lessen the burden, enhance treatment outcomes, and improve the future for everyone impacted by both diseases, **addressing the dual burden of DM and TB requires a concerted effort from healthcare professionals**.

PEPPER IT WITH

AMR, Prediabetes, Nikshay Portal, NTEP

Indian pharma companies under international scrutiny

News Excerpt

Indian pharma companies have been under constant international scrutiny for exporting allegedly contaminated drugs, which have led to deaths of children.

About the Issue

- Nigeria raised the alarm about two oral medications, and Cameroon did the same when many children died from a cough syrup that was allegedly produced in India.

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- Two medications made in India were singled out by Sri Lanka after numerous patients reported experiencing negative side effects.
- In Uzbekistan, diethylene glycol-containing cough medication caused the deaths of 18 kids. Following the deaths of children in the Gambia and Uzbekistan, the **Central Drugs Standard Control Organization (CDSCO) cancelled Marion Biotech's licence.**
- The **World Health Organization (WHO)** issued an alert in October, associating four Indian-made cough syrups with child deaths in Gambia. While India maintained that the medicines met the required standards during domestic testing, the WHO upheld its actions.
- These controversies have overshadowed India's pharmaceutical industry, which is responsible for one-third of the world's medications.

About CDSCO:

- ❖ It is the Central Drug Authority and is responsible for carrying out duties entrusted to it by the **1940 Drugs and Cosmetics Act.**
- ❖ The **National Regulatory Authority (NRA)** of India, which answers to the **Ministry of Health and Family Welfare**, is in charge of overseeing it.

Why are regulators failing to take action against faulty manufacturing practices

- The **complicated and disjointed regulatory framework**, in which numerous agencies are given diverse roles, is one important issue.
- Drug imports and approvals are handled by the **Ministry of Health and the Central Drugs Standard Control Organization (CDSCO)**, while **licensing and criminal prosecutions are the responsibility of state governments.**
- This separation of duties frequently results in a **lack of coordination and responsibility.** Agencies may pass the buck among themselves, failing to act quickly and forcefully against companies engaging in unethical behavior.
- The issue is also exacerbated by the fact that **State Food and Drug Administration authorities are not required to disclose inspection reports.**
- The lack of resources and facilities for testing completed goods for contamination is another problem. **Diethylene glycol (DEG)** is used in Jammu & Kashmir.

Why are pharma companies not punished?

- **License suspension or cancellation:** Suspending or canceling a company's manufacturing license is insufficient, as owners can start a new business.
- **Slow legal proceedings:** The Drugs and Cosmetics Act of 1940 imposes a maximum punishment of life imprisonment for manufacturers who fail to comply with good manufacturing practices. Slow court proceedings enable companies to evade consequences and operate without interruption.
- **Errors by drug inspectors:** Poor conviction rate due to drug inspector errors, including poor paperwork, improper labeling, and incomplete testing, weakens evidence against pharmaceutical companies. Such errors weaken the evidence against pharmaceutical companies, making it harder to secure convictions.
- **Shortage of drug inspectors:** CDSCO faces a shortage of drug inspectors, hindering thorough inspections and effective regulation enforcement.
- **Influence of the pharmaceutical industry:** Pharmaceutical companies' economic and political influence can influence decision-making, potentially causing leniency or inadequate enforcement actions.
- **Complex legal framework:** Pharmaceutical industry's complex legal framework requires expertise, evidence, and resources, making accountability challenging for regulatory agencies.
- **Economic considerations:** Pharmaceutical industry's revenue and employment contribute significantly to the economy; governments may be hesitant to take punitive actions due to potential negative consequences.

Steps taken by the government:

- The Indian government has mandated that cough syrup manufacturers must have their **products tested before exporting** them.
- This new requirement, effective from 1 June, **necessitates a certificate of analysis from an approved laboratory.**
- **The Director General of Foreign Trade** made the announcement, stating that cough syrups can be exported only after the **export sample has been tested.**
- The notification of the Director General of Foreign Trade also provided a **list of authorized government laboratories in the country for sample testing.**

- This policy change follows previous reports highlighting concerns about the quality of drugs produced by Indian pharmaceutical companies and their manufacturing practices.

Way forward

- In order to ensure compliance with **good manufacturing practices**, it is essential to strengthen the regulatory environment through the Drug and Cosmetics Act with harsher rules and penalties.
- It is critical to address the **scarcity of inspectors, offer training, and carry out detailed facility inspections** to improve drug inspections.
- Collaboration with international regulatory organizations** will bring procedures into line with international norms and boost credibility.
- Innovative and high-quality medication development can be accelerated by **encouraging research and development partnerships between universities, businesses, and research organizations**.
- Fostering public-private partnerships promotes knowledge exchange, capacity building, and collaborative projects for research and quality assurance.** A comprehensive investigation and proper action against violators are ensured through the establishment of transparent reporting systems and accountability.
- Industry standards are raised by promoting **acceptable production processes** through training and certification.

PEPPER IT WITH

AMR, Pre-diabetes, Nikshay Portal, NTEP

Hate groups on the Internet

News Excerpt

In order to explore the topic of social physics, renowned physicist **Dr Neil Johnson** has examined and modelled the dynamics of online hate societies.

About Online Hate Communities

- Online hate organisations, also referred to as **"anti-X" groups**, are notable for their rapid growth and persistence despite efforts by platform administrators to thwart them.
- Dr Johnson's research focuses on using **fluid dynamics analogies** and **mathematical modelling** to understand the dynamics of these communities.
- The study found five important factors that must be considered to comprehend how online hate communities behave:
 - These communities' changing internal dynamics
 - Their independence from location
 - constant expansion
 - rapid nuclear reactions
 - Their presence on several platforms.

The method used to study Online Hate Community Dynamics:

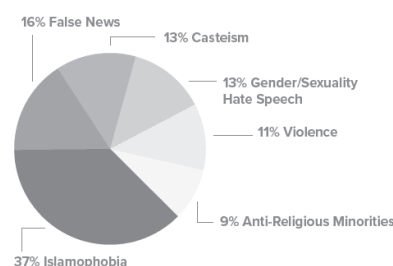
- In order to develop their model, Dr Johnson and his team have amassed a **comprehensive database of online hate organizations** on various social media platforms since 2016.
- The aggregation and **de-aggregation of individuals within these communities were studied**, and equations resembling those describing turbulent fluid dynamics were devised.
- These equations take into consideration **shock waves**, which are disturbances that travel faster than the speed of sound and can be recognised by rapid changes in pressure, temperature, and density.
- The model properly captures **individual traits, shifting interpersonal dynamics between communities, and the unique "flavours" of hatred** present within each society.

Significance of Identifying and Combating Hate Speech:

- It will have significant implications for **identifying and combating hate speech** on social media platforms.
- Instead of focusing solely on individual examples, researchers might better understand **how incendiary information spreads by examining networks** of well-known hate speech communities.

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Hate speech targeting Indian caste, religious, gender, and queer minorities is rampant across Facebook.



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- The "innuendo problem" that machine learning algorithms in detecting hate speech present, may be resolved by the model's prioritisation of following repeat offenders and their networks.
- This approach offers a more **thorough understanding of the dynamics of hate speech** and more efficient content filtering strategies.

Conclusion

- Dr Neil Johnson's research provides exceptional insights into the dynamics of online hate networks through the study of social physics.
- Physics can offer **light on group behaviour inside social systems** by using mathematical modelling and drawing comparisons with fluid dynamics.
- **To effectively oppose hate speech and promote a safer online environment**, it is essential to understand how online hate networks emerge, persist, and interact with one another.
- The groundbreaking work of Dr Johnson creates new opportunities for **interdisciplinary cooperation** and the creation of **focused interventions** to combat hate speech in the digital era.
- Society may work to create an **online environment that is more accepting and inclusive** with further research and practical actions.

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New Drugs and Clinical Trial Rules (2023)

News Excerpt

Recently the Indian government has approved an update to the **New Drugs and Clinical Trial Rules (2023)** that will result in a dramatic change in how drugs are developed and tested.

Key highlights

- The approval of non-animal, human-relevant procedures in drug testing advances **animal-free testing**.
- The **precision and effectiveness of medication development** are expected to be improved by this modification, which will also address concerns about animal suffering.
- These novel methods have significant potential advantages and hold out hope for a **more trustworthy and moral drug development process**.
- India wants to use these techniques to **lessen its dependency on animal experimentation** and set the standard in this forward-thinking field.

Advancements in Testing Methods

- Technologies that use **human cells or stem cells** for drug testing have made amazing strides in recent decades.
- **Organoids**, which are three-dimensional cellular constructs that resemble particular organs, offer a viable route for the creation of new drugs.
- Using human **cell-lined chips, organs-on-chip mimics the physiological circumstances** and interactions seen in the human body.
- Using patient-specific cells as **"bio-ink,"** 3D bioprinting also enables the development of human tissues or organ systems.
- These innovations hold the promise of reshaping medication research, personalising drug evaluations, and reducing the need for animal testing.

Status of Global Regulatory Frameworks

- ✓ The amount of **adoption of non-animal testing methodologies is significantly influenced by the global regulatory frameworks** that have been put in place.
- ✓ Several countries, including the European Union, the United States, South Korea, and Canada, have supported the **switch to animal-free testing practices through legislation and policy reforms**.
- ✓ The New Drugs and Clinical Trial Rules 2019 modification in India follows this international trend and demonstrates a dedication to improving ethical and efficient drug testing procedures.

Challenges

- The change to India's New Drugs and Clinical Trial Rules is a step in the right direction, but obstacles still stand in the way of fully achieving the potential of human-relevant testing techniques.

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- In order to create organ-on-a-chip systems, one challenge is the need for **trans-disciplinary competence**, which necessitates cooperation between experts in diverse domains.
- The creation of **specialised institutes or Centers for Excellence**, like the **Wyss Institute in Boston**, could promote collaboration and creativity in human biology simulation.
- Additionally, since **most chemicals, equipment, and supplies for cell culture are imported, access to research resources is a challenge**.

Way Forward

- ✦ To build a self-sustaining environment and lower the cost of resource imports, India should invest in **research infrastructure and expand knowledge in key fields**.
- ✦ It is essential to **standardize quality standards** and protocol requirements in order to validate testing procedures involving human subjects across numerous labs.
- ✦ Regulations governing animal experimentation must also be updated to reflect developments in **cell- and gene-based therapies**.
- ✦ By addressing these problems, India will be better able to develop **human-relevant testing methods and progress medical research**.

National Research Foundation

News Excerpt

The **National Research Foundation (NRF) Bill** was placed in the Parliament.

About NRF

- The establishment of the National Research Foundation was one of the key recommendations made by the **National Education Policy (NEP) 2020**.
- The foundation is intended to play a crucial role as a **coordinating agency, bringing industry to the forefront of research** by bridging the gap between researchers, governmental bodies, and companies.
- The goal of this strategy is to **encourage the expansion of research initiatives** and improve the nation's overall research environment.

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Aim and Objective of NRF

- It seeks to **advance scientific investigation** at Indian institutions of higher learning.
- Along with more fundamental objectives like **funding and mentoring research**, it also aims to **broaden the range of college and university research engagement**.
- By providing chances for **doctorate and post-doctoral fellowships**, the NRF hopes to close the gap between research and higher education and encourage active researchers to work with current faculty members.
- Notably, the NRF promotes research in the **humanities, social sciences, and arts** in addition to the natural sciences, which stimulates **creative and critical thinking**.
- It seeks to **address urgent national concerns** like healthcare, clean energy, and climate change through extensive, protracted, multidisciplinary projects.
- The primary focus is on funding, with the goal of considerably **increasing national research spending** and enhancing research.

How will it be funded?

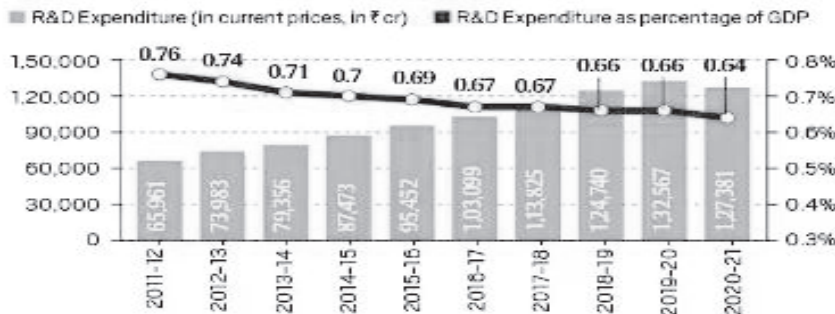
- ✓ The National Research Foundation (NRF) would operate on a **₹50,000-crore budget for five years**.
- ✓ Government funding will account for **28%** of the total (₹14,000 crore), with the balance **72%** (₹36,000 crore) coming from the private sector.
- ✓ The plan calls for raising the government's contribution to **₹20,000 crores annually**, with **₹4,000 crores coming from the budget** of the current Science and Engineering Research Board. As a result, the NRF will receive an **additional ₹10,000 crore over the following five years**.
- ✓ However, this rise in research and development expenditures is thought to be modest, as it representing **less than 2% of India's gross domestic expenditure on research and development (GERD)**.
- ✓ **India's GERD is much lower than other developed nations'**, such as the United States and China.

- ✓ India has a GERD of **₹1,13,825 crore in 2017-18**, while its GDP was **7.6 and 5.1** times lower than that of the United States and China, respectively.
- ✓ Additionally, during the same time period, **India's GERD was about 24 times lower than that of these nations**, and the disparity has become even wider in the last five years.

Key indicators: How India compares with others

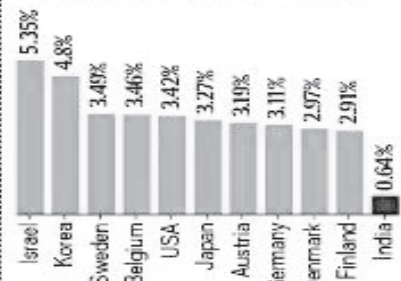
India compares unfavourably with the world's best on R&D expenditure as percentage of GDP — and the number has trended downward over the past decade. India has far fewer researchers per million population compared with China, Brazil, or the US

EXPENDITURE ON R&D (ALL PUBLIC PLUS PRIVATE)



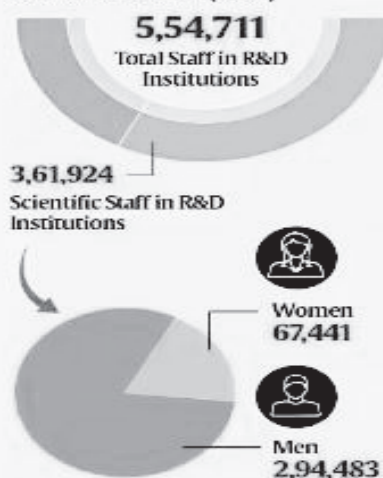
Source: Department of Science and Technology (DST)

TOP TEN COUNTRIES WITH MAXIMUM EXPENDITURE ON R&D AS % OF GDP



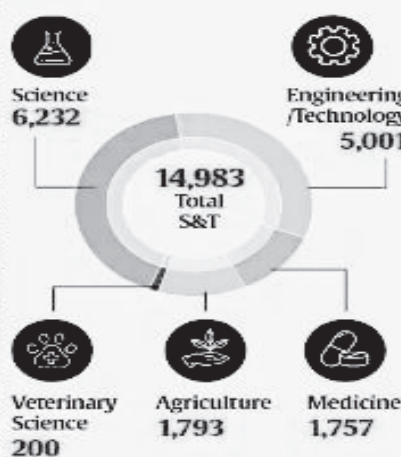
Source: UNESCO Science Report 2021

WOMEN IN SCIENCE (2021)



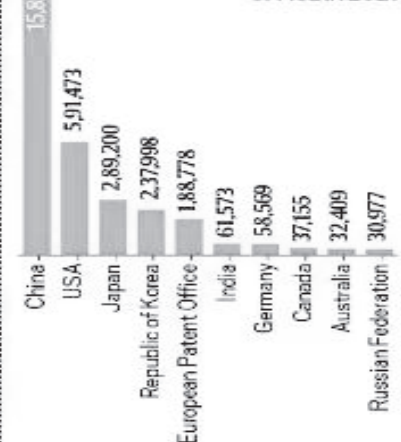
Source: DST

DOCTORATES AWARDED IN SCIENCE AND ENGINEERING IN 2020-21



Source: DST

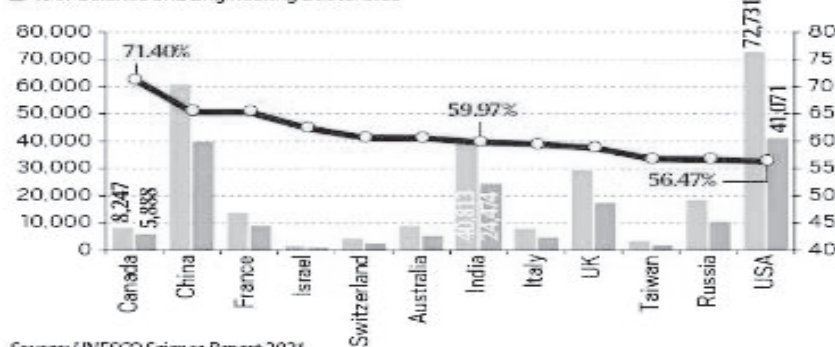
PATENTS FILED IN COUNTRY OFFICE IN 2021



Source: UNESCO Science Report 2021

DOCTORATES PRODUCED IN 2018

■ All Doctorates ■ Science and Engineering Doctorates ■ % of Science and Engineering Doctorates



Source: UNESCO Science Report 2021

RESEARCHERS PER MILLION POPULATION

Israel	8,342
Singapore	7,287
Japan	5,455
USA	4,821
United Kingdom	4,684
Australia	4,532
Canada	4,516
Russian Federation	2,722
China	1,585
Brazil	888
South Africa	484
Mexico	349
India	262

Source: UNESCO Science Report 2021

Graphic: Ritesh Kumar

How can the NRF facilitate the "ease of doing science"?

- The research grant process needs improvement in several areas. Firstly, the **time between application and receiving funds should be minimized**, preferably within six months.
- Secondly, **all paperwork should be digitally processed**, avoiding the need for hard copies.
- Thirdly, **finance-related matters should be handled between the NRF and the university/research institution's finance department**, freeing scientists to focus on research.
- Fourthly, **specific spending guidelines are required for scientific research**, separate from general financial rules.
- Lastly, **a mechanism must be established to ensure timely disbursement of funds**. Regarding private industry participation in the NRF, there is uncertainty about raising ₹36,000 crore from the industry, requiring a more detailed plan and mechanisms like escrow accounts for reassurance.

Way forward:

- ✦ **Clear and open funding and coordination rules** are essential to the National Research Foundation's (NRF) effectiveness.
- ✦ The **effectiveness of research activities** will be maximized by putting a focus on **inclusivity and collaboration**.
- ✦ In order to increase financing and relevance, **NRF should encourage critical thinking, creativity, and early career researchers**.
- ✦ **A strong monitoring and evaluation structure** will guarantee efficient resource use.
- ✦ **Knowledge sharing and exposure to cutting-edge innovations** will be facilitated by international partnership with prominent academic institutes.
- ✦ By putting these plans into action, **NRF can close the funding gap for science and technology**, turning India into a hub for international research and fostering innovation for local growth.

Palliative care

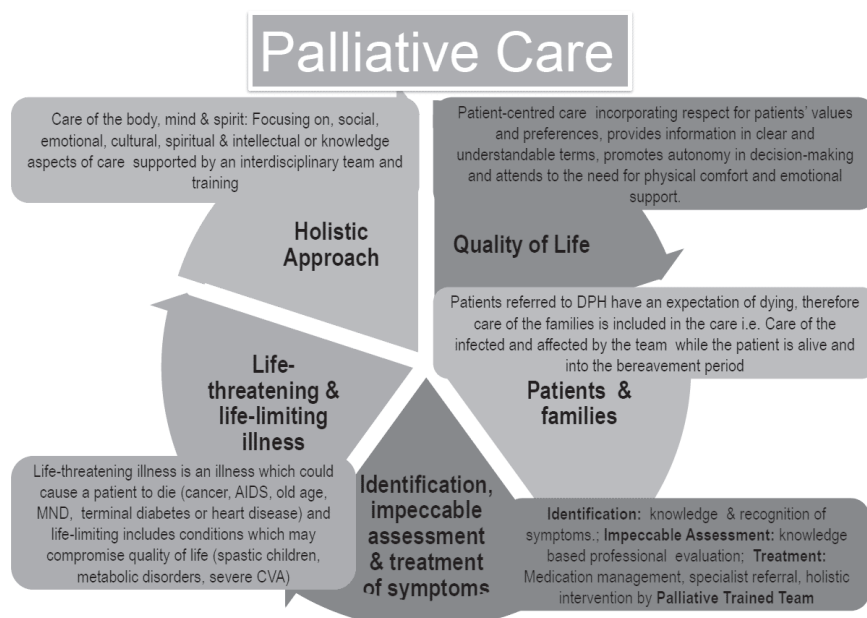
News Excerpt

Recently, a new set of operational guidelines, issued by the government, limit the focus of palliative care in India to people with cancer.

About palliative care

- India has around **20% of the world's population**, is more severely affected by non-communicable diseases than any other country, with cancer being the most common, accounting for **1.4 million annual deaths**. As lifestyle-related illnesses like diabetes and respiratory ailments get worse, palliative care becomes important.
- A crucial component of healthcare is Palliative care, which tries to **improve the quality of life and lessen suffering for people with terminal illnesses**.
- The social, emotional, spiritual and physical needs of those who are nearing the end of their life are considered part of a holistic approach to patient care.
- By considering the entire person and not just the illness, **it seeks to improve the patients' and their families' overall wellbeing**.
- Palliative care also **includes grieving support for carers** when the patient passes away.

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The Need for Palliative Care in India

- India, a nation of over a billion people, suffers greatly from non-communicable diseases. **Palliative care is required for up to 7 out of 10 patients, especially those who have terminal or chronic conditions.**
- However, due to their concentration in **urban tertiary healthcare centres**, palliative care services are still only partially accessible.
- As a result, only a small percentage of the **estimated 7–10 million patients** who require palliative care can access these services.

Gaps in the Existing Guidelines

- ✓ Even though the **National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD)** is a step in the right direction toward reducing the burden of chronic illnesses, palliative care is gravely underrepresented in the program's implementation.
- ✓ Palliative care is **only mentioned about cancer in the updated operational guidelines for NP-NCD**, which were published in May 2023. The necessity for palliative treatment for other non-cancer ailments is diminished by this restricted focus.
- ✓ Additionally, **the guidelines miss the chance to promote pediatric palliative care**, which is essential for kids with chronic illnesses.
- ✓ Children who are nearing the end of their lives are denied the treatment they so urgently need if this branch is neglected.

Way forward:

- To provide thorough palliative care for all patients, the NP-NCD recommendations should be updated to include not just cancer but all life-limiting illnesses as well.
- Where possible, palliative care delivery should begin at the sub-centre and health and wellness centre levels. This approach is crucial for the patient's comfort and affordability.
- Even while NGOs have contributed significantly to the delivery of palliative care, the government must enhance its financial support if it wants to guarantee widespread access to these treatments.
- The use of morphine by cancer patients alone should not be the exclusive criterion for evaluating access to palliative care. It should take into account the total use of opioid analgesics and assess how well palliative care services are performing in contrast to global norms.

Intellectual Property Protection

News Excerpt

Recently, The Delhi High Court upheld an order by the Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA), revoking the intellectual property protection granted to PepsiCo India Holdings Pvt. Ltd with respect to a potato variety developed by it.

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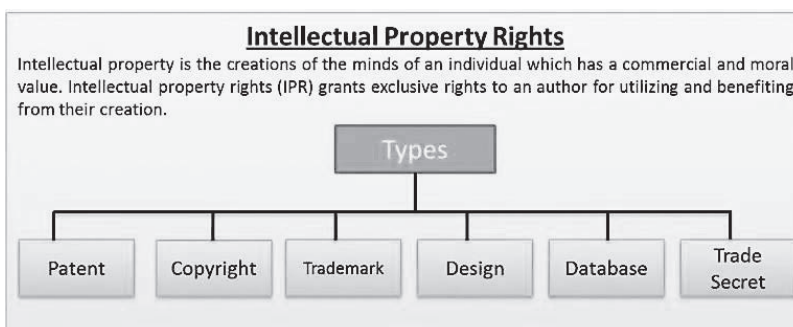
About FL 2027 Varieties

- FL 2027 was developed in 1996 by Robert W. Hoopes, a US breeder employed with Frito-Lay Agricultural Research, a division of PepsiCo Inc.
- Generally, potatoes have more moisture and are also high in sugar. The excess moisture contributes to additional dehydration and energy costs during the processing and manufacturing phase of the chips while the high sugar content in normal potatoes makes them black while frying.
- But the FL 2027, a type of potato with high dry matter and low sugar content than other potato variations which contain at least 85 per cent moisture makes it ideal for making snacks like chips.

Intellectual property protection

- Intellectual property protections are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time.
- **Objective:**

- The primary purpose of intellectual property rights is to stimulate creativity by providing an exclusive right to creative inventions and works. These protection rights inspire artists, authors, and inventors to share their work for the benefit of society.
- Intellectual property protections have been formed to reassure the creator's full social and monetary value of their work.



TYPES OF INTELLECTUAL PROPERTY PROTECTIONS/RIGHTS			
Basis	Copyright	Trademark	Patent
Requested by	Authors, painters, artists, and other creative professionals	Businesses, product owners	Inventors, scientists
Subject Matter	Tangible works of authorship, photographs, films, sculptures, etc.	Name, Symbol, and design exclusive to a business	Machine Designs, Processes, Chemical compositions
Validity	Validity lasts up to 70 years after the death of the author	Valid indefinitely, however, with renewal every 10 years	Valid for 20 years from the filing date

Advantages of Intellectual Property protections

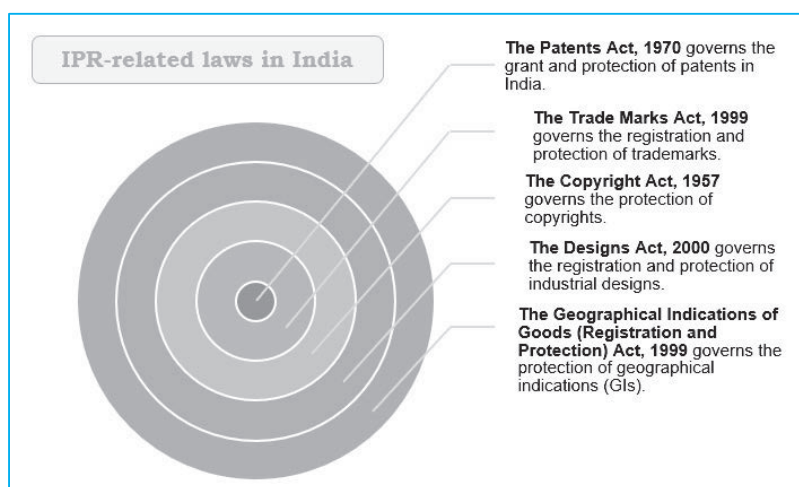
- ✓ IPR gives an incentive to entities and individuals to invest in the development of new ideas as they are reassured of a fair return on their investment.
- ✓ Investment into such research and development and later implementation and production supports the economy.
- ✓ Intellectual Property is a vital tool in creating recognition for business. Intellectual Property can aid to distinguish products and services in the market from those of other sellers & promote them to reach the targeted clients.

Disadvantages of Intellectual Property protections:

- One of the main criticisms of IPR is that it can hinder access to knowledge and information, particularly in developing countries like India. Patents, copyrights, and trademarks often grant exclusive rights to the owners, limiting others from using, copying, or distributing the protected creations.
- IPR can sometimes lead to monopolistic practices.
- It can create barriers to entry for aspiring innovators and artists.
- IPR can pose challenges to the protection and preservation of traditional knowledge and traditional cultural expressions (TCEs).

About the Case

- ✚ PepsiCo India Holdings, the subsidiary of the US food, snack and beverage giant, was granted a certificate of registration for FL 2027 as an "extant variety" on February 1, 2016.
- ✚ The validity period was six years from the date of registration and extendable up to 15 years. During the time nobody else could commercially produce, sell, market, distribute, import or export it without the breeder's authorisation.
- ✚ **Protection of Plant Varieties and Farmers' Rights Authority (PPVFR)**, the authority that had earlier granted registration for FL 2027, revoked the same through an order passed on December 3, 2021. PPVFR also issued a letter on February 11, 2022, rejecting PepsiCo India's application for renewal of its registration.



✚ PepsiCo challenged both the order and the letter before the Delhi High Court.

Judgment by the High Court

The court, in its ruling on July 5, upheld the PPVFRA's decision on such grounds-

- PepsiCo had, in its application on February 16, 2012, sought the registration of FL 2027 as a "new variety".
- A "new variety" had to conform to the criterion of novelty. That required the propagated or harvested material from it not to have been sold in India earlier than one year before the date of filing the application for registration. Having failed the test of novelty, FL 2027 could only have been granted registration as an "extant variety". Such a variety could satisfy only the criteria of distinctiveness, uniformity and stability, but not novelty.
- PepsiCo was also found to have given the first date of sale of the variety in its application as December 17, 2009, when it had already been commercialised in 2002 in Chile. The certificate of registration had, thus, been obtained based on incorrect information furnished by the applicant.

Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA)

- ❖ It is a statutory body created by the Protection of Plant Varieties and Farmers' Rights Act, 2001.
- ❖ It was established for protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new varieties of plants.

Way forward

- ⇒ A recent PepsiCo case highlighted the issues related to fake IPR claims and registrations. Govt. should strengthen the IPR laws and registration process.
- ⇒ Patent evergreening is one of the big issues. Patent evergreening should be prohibited because it impacts the social welfare schemes and economic development and promotes monopoly in the market.
- ⇒ IPRs is very important feature for the innovative world but its misuse by big companies is still a concern and it should be stopped for social and economic welfare led innovation.

Male-domination in India's Workforce

News Excerpt

The Centre for Monitoring Indian Economy (CMIE) data shows that in 2016-17, females comprised only 15.3 per cent of the labour force in India. This fell to 12 per cent in 2019-20 and fell further to a mere 10.3 per cent in 2022-23.

Pre-Connect

Labour force participation rate (LFPR)

- The LFPR is the share of the working-age population (aged 15 years and above) that is employed or unemployed, willing and looking for employment.
- Labour force participation rate is defined as the section of working population in the age group of 16-64 in the economy currently employed or seeking employment.
 - People who are still undergoing studies, housewives and persons above the age of 64 are not reckoned in the labour force.
- The labour force participation rate is the measure to evaluate working-age population in an economy.

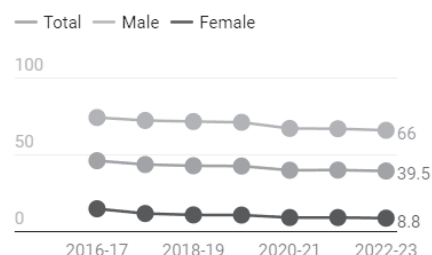
About the Low LFPR

- India's labour force participation rate (LFPR) fell to **39.5%** in the financial year **2022-23**.
- Only **39.5% Indians aged 15 years and above**, are asking for a job. Among men, this proportion was **66% and among women, just 8.8%**. This is the **lowest LFPR since financial year 2016-17**.
- It is noteworthy that the fall has happened despite the fast growth rate of the economy. For instance, the **GDP grew by 7.2% in 2022-23**.

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India's Labour Force Participation Rate continues to fall

LFPR (in %) is the share of the working age population (aged 15 years and above) that is employed or unemployed, willing and looking for employment.



- Data shows that the bulk of the decline happened before the Covid pandemic. This was the time when the economy was decelerating sharply. The GDP in 2019-20 grew by less than 4%.
- India's workforce is becoming increasingly male-dominated, thanks to India's starkly low female LFPR.
 - CMIE data shows that in 2016-17, females comprised only 15.3 per cent of the labour force in India. This fell to 12 per cent in 2019-20 and fell further to a mere 10.3 per cent in 2022-23.

Reason for the low LFPR

- ✓ Typically, this happens when workers fail to get a job for long periods of time, get discouraged and decide to sit out of the labour force.
- ✓ The Covid-19 pandemic also affect the labour force. A lot of labour force displaced due to pandemic and now they are worried about their social and economic security in outside home.
- ✓ One reason cited for low LFPR is that the employment rate among the women is abysmally low.
- ✓ Increased mechanisation is also a one of the reasons that decrease LFPR. Unskilled or semi-skilled worker are losing their job due to mechanisation.

Reason for the huge difference between men and women in LFPR

- The root causes of the observed decline in female labour force participation in India, which include:
 - Increasing attendance in educational institutions;
 - Increased household income;
 - Social pressure, fertility rates and the age of marriage
 - Changes in measurement methodology across surveys; and
 - Insufficient job opportunities for women.
- A possible explanation for the lack of available job opportunities for women is that men benefit disproportionately from increased demand for highly skilled workers. This is likely in India as men remain more skilled and more educated on average than women.
- Nonetheless, the nature of economic growth in the country has meant that jobs were not created in large numbers in sectors that could readily absorb women, especially for those in rural areas.
- Women continue to face many barriers to enter labour market and to access decent work and disproportionately face a range of multiple challenges relating to access to employment, choice of work, working conditions, employment security, wage parity, discrimination, and balancing the competing burdens of work and family responsibilities.

Govt. Initiative to Increase LFPR

- ✚ Central Government has targeted the issue by taking various prominent steps to increase female labour participation rate which includes
 - The Code on Social Security, 2020 has the provisions for enhancement in paid **maternity leave from 12 weeks to 26 weeks**, provision for mandatory **crèche facility** in the establishments having 50 or more employees, **permitting women workers in the night shifts** with adequate safety measures, etc.
 - The Code on Wages 2019 has provisions that there shall be **no discrimination in an establishment or any unit thereof among employees on the ground of gender in matters relating to wages** by the same employer, in respect of the same work or work of similar nature done by any employee.
 - To enhance the employability of female workers, the **Government is providing training to them through a network of Women Industrial Training institutes, National Vocational Training Institutes and Regional Vocational Training Institutes.**
- ✚ Government has implemented the **National Career Service (NCS) Project** which comprises a digital portal that provides a nation-wide online platform for jobseekers and employers for job matching in a dynamic, efficient and responsive manner and has a repository of career content.
- ✚ A new Ministry of Skill Development and Entrepreneurship has been established to coordinate the skill development schemes across various sectors.
 - National Apprenticeship Promotion Scheme (NAPS) and Pradhan Mantri Kaushal Vikas Yojana (PMKVY) to enhance the employability of youth.

- ✚ The Aatmanirbhar Bharat Rojgar Yojana (ABRY) was launched to incentivize employers for creation of new employment and restoration of loss of employment during Covid-19 pandemic.

Way forward

- ⇒ The policy makers in India and throughout the region should take a comprehensive approach to improving labour market outcomes for women through improving access to and relevance of education and training programs, skills development, access to child care, maternity protection, and provision of safe and accessible transport, along with the promotion of a pattern of growth that creates job opportunities.
- ⇒ Beyond standard labour force participation rates, policy-makers should be more concerned about whether women are able to access better jobs or start up a business, and take advantage of new labour market opportunities as a country grows.
- ⇒ A policy framework encouraging and enabling women's participation should be constructed with active awareness of the "gender-specific" constraints that face most women. Gender responsive policies need to be contextually developed.

PEPPER IT WITH

LFPR, Unemployment rate,
Labour Force, CMIE

Multidimensional Poverty

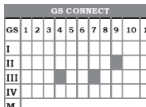
News Excerpt

The latest update of the global Multidimensional Poverty Index (MPI) praise India for its significant progress.

Pre-Connect

Multidimensional Poverty Index (MPI)

- The global MPI was developed by Oxford Poverty and Human Development Initiative: OPHI, with the UN Development Programme (UNDP) for inclusion in UNDP's flagship Human Development Report in 2010.
- It has been published annually by OPHI.
- It complements traditional monetary poverty measures by capturing the acute deprivations in **health, education, and living standards** that a person faces simultaneously.
- The MPI measures "interlinked deprivations in health, education and standard of living that directly affect a person's life and wellbeing".



Global MPI Map showing India's position. The map is a grid with rows labeled GS, I, II, III, IV, M and columns labeled 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. India is highlighted in the cell corresponding to GS, 10.

TABLE: Global MPI – Dimensions, Indicators, Deprivation Cutoffs, and Weights

DIMENSIONS OF POVERTY	INDICATOR	DEPRIVED IF LIVING IN A HOUSEHOLD WHERE...	WEIGHT	SDG AREA
Health (1/3)	Nutrition	Any person under 70 years of age for whom there is nutritional information is undernourished.	1/6	SDG 2: Zero Hunger
	Child mortality	A child under 18 has died in the household in the five-year period preceding the survey.	1/6	SDG 3: Health and Well-being
Education (1/3)	Years of Schooling	No eligible household member has completed six years of schooling.	1/6	SDG 4: Quality Education
	School attendance	Any school-aged child is not attending school up to the age at which he/she would complete class 8.	1/6	SDG 4: Quality Education
Living Standards (1/3)	Cooking fuel	A household cooks using solid fuel, such as dung, agricultural crop, shrubs, wood, charcoal, or coal.	1/18	SDG 7: Affordable and Clean Energy
	Sanitation	The household has unimproved or no sanitation facility or it is improved but shared with other households.	1/18	SDG 6: Clean Water and Sanitation
	Drinking water	The household's source of drinking water is not safe or safe drinking water is a 30-minute or longer walk from home, roundtrip.	1/18	SDG 6: Clean Water and Sanitation
	Electricity	The household has no electricity.	1/18	SDG 7: Affordable and Clean Energy

	Housing	The household has inadequate housing materials in any of the three components: floor, roof, or walls.	1/18	SDG 11: Sustainable Cities and Communities
	Assets	The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck.	1/18	SDG 1: No Poverty

Key points of the report

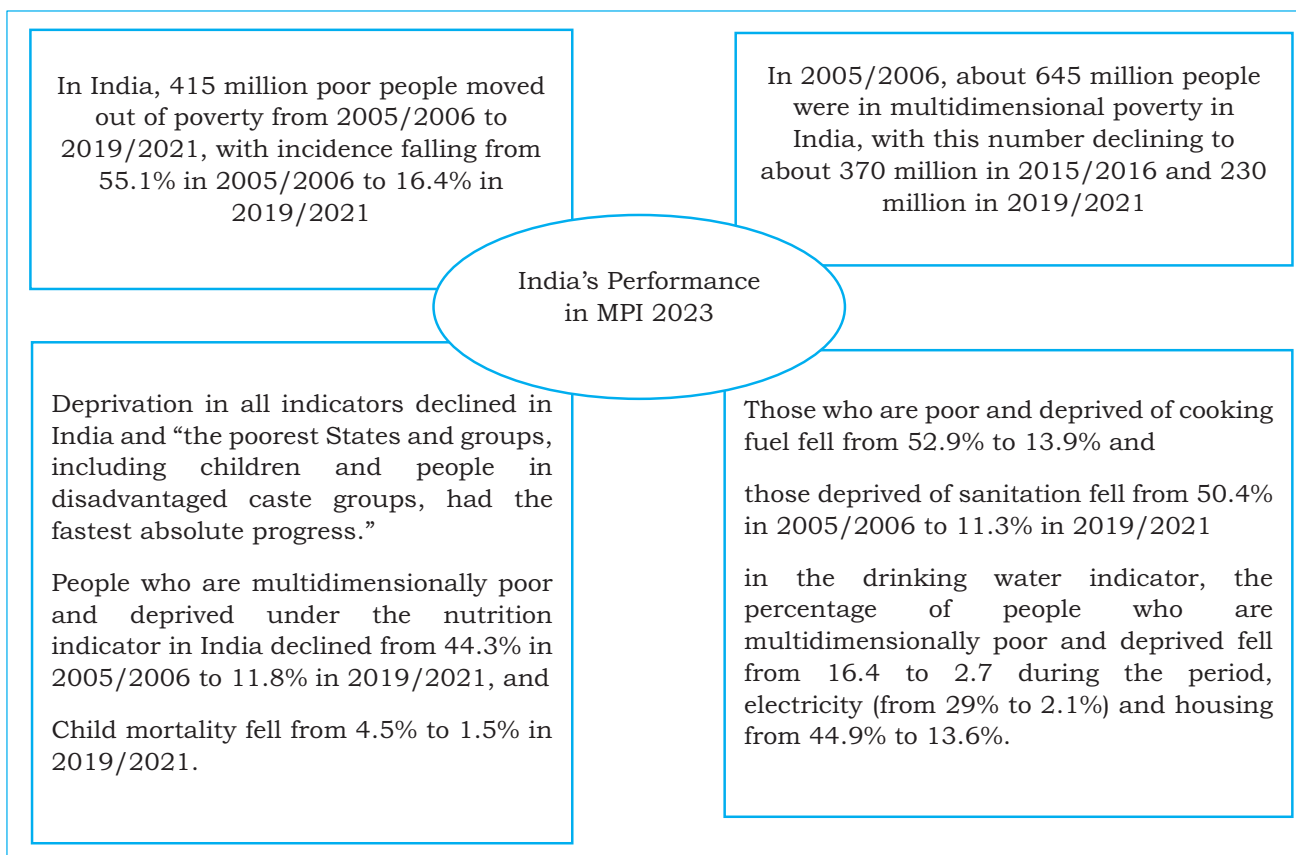
- According to the report, countries with different incidences of poverty have halved their global MPI value. While 17 countries that did so had an incidence under 25% in the first period, India and Congo had a starting incidence above 50%.
- Report stated that **25 countries**, including India, successfully **halved their global MPI** values **within 15 years**, showing that rapid progress is attainable.
 - These countries include **Cambodia, China, Congo, Honduras, India, Indonesia, Morocco, Serbia, and Vietnam.**
- According to the MPI, 2023 release, 1.1 billion out of 6.1 billion people (just more than 18%) live in acute multidimensional poverty across 110 countries.
 - Sub-Saharan Africa (534 million) and South Asia (389 million) are home to approximately five out of every six poor people.
- Nearly two-thirds of all poor people (730 million people) live in middle-income countries, making action in these countries vital for reducing global poverty.
 - Although low-income countries constitute only 10% of the population included in the MPI, these are where 35% of all poor people reside.
- Children under the age of 18 account for half of MPI-poor people (566 million). The poverty rate among children is 27.7%, while among adults, it is 13.4%.
- In over half the countries covered, there was either no statistically significant reduction in child poverty or the MPI value fell more slowly among children than among adults during at least one period. This suggests that child poverty will continue to be a pressing issue, particularly in relation to school attendance and under-nutrition.
- Poverty predominantly affects rural areas, with 84% of all poor people living in rural areas. **Rural areas are poorer than urban areas across all regions of the world.**
- Countries halved their MPI in periods as short as four to 12 years, demonstrating the feasibility of the Sustainable Development Goal (SDG) target of halving poverty according to national definitions within 15 years.
- A press release issued by the UNDP stated that judging from the few countries where data were solely collected in 2021 or 2022 – Mexico, Madagascar, Cambodia, Peru, and Nigeria – momentum on poverty reduction may have persisted during the pandemic.
- Cambodia, Peru, and Nigeria showed significant reductions in their most recent periods, offering hope that progress is still possible.
 - In Cambodia, the most encouraging case among these, the incidence of poverty fell from 36.7% to 16.6%, and the number of poor people halved, from 5.6 million to 2.8 million, all within 7.5 years, including the pandemic years (2014–2021/22).

Factors played key role to achieve the milestone

All 12 parameters of the MPI have shown marked improvements. Flagship programmes like-

- ✓ The Poshan Abhiyan and Anaemia Mukta Bharat have contributed to reduced deprivations in health.
- ✓ Initiatives such as Swachh Bharat Mission (SBM) and Jal Jeevan Mission (JJM) have improved sanitation across the country. The impact of these efforts is evident in the swift improvement in sanitation deprivations.
- ✓ The provision of subsidized cooking fuel through the Pradhan Mantri Ujjwala Yojana (PMUY) has positively transformed lives, with improvement in cooking fuel deprivations.
- ✓ Initiatives like Saubhagya, Pradhan Mantri Awas Yojana (PMAY), Pradhan Mantri Jan Dhan Yojana (PMJDY), and Samagra Shiksha have also played a major role in significantly reducing multidimensional poverty in the country.

- ✓ The remarkable progress achieved through extremely low deprivation rates especially for electricity, access to bank accounts and drinking water, reflects the Government's unwavering commitment to improving citizens' lives and creating a brighter future for all.
- ✓ Consistent implementation across a diverse set of programmes and initiatives that have strong interlinkages has led to a significant reduction in deprivations across multiple indicators.



Way Forward

- According to the MPI report India still has more than 230 million people who are poor. So, India should take the population “vulnerable” to multidimensional poverty seriously.
- Govt. should work for reducing regional disparity and inequality across state and nation.
- Increasing awareness through civil society, media and other factor and participation in planning, budgeting, scheme or programme implementation will be more effective step for poverty eradication.
- One of the major steps for the poverty eradication will be proper implementation of current programmes and schemes of the government.

ECONOMY

Deceptive Advertising Practices: Menace of 'dark patterns' in e-Market

News Excerpt

The Department of Consumer Affairs and the Advertising Standards Council of India (ASCI) recently held a joint consultation with stakeholders on the menace of 'dark patterns'. The ASCI has come up with guidelines for the same, with the central government also working towards norms against 'dark patterns'.

Pre-ConnectAbout Dark patterns:

- The dark pattern phrase was firstly introduced by Harry Brignull as a user experience researcher in the U.K. in 2010 to characterise deceptive strategies used to trick clients.
- Dark pattern refers to a type of design or user interface technique intentionally designed to manipulate or deceive users into making certain choices or performing specific actions that may not be in the best interests of consumers.

Why is it deceptive?

- It is a deceptive method **employed to influence user behaviour** in a way that benefits the company implementing it.
- For example, a common dark pattern is the "sneak into basket" technique used on e-commerce websites.

How is it deceptive?

- When a user adds an item to their shopping cart, a dark pattern may be employed by automatically adding additional items to the cart without the user's explicit consent or explicit notification.
- It may mislead the user into purchasing more items than they intended, and potentially increase the company's sales.
- Similarly, many of us have been faced with pop-up requests for our personal information, where we find it difficult to locate the 'decline' link.
- If customers wish to remain on a website, it is extremely challenging for them to decline the acquisition of their personal data as the option to opt out is very finely placed.
- By using such dark copatterns, digital platforms violate the consumer's right to full transparency of the services they use and control over their browsing experience.

Legal status of Dark patterns

- ✓ This aspect of dark matter is very complex as differentiating between manipulation and fraudulent intent can be challenging. Presently there is no specific regulations against or to prevent dark patterns in most countries.
- ✓ However, individuals who have experienced harm as a result of dark patterns may potentially seek compensation for damages.

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Types of Dark patterns

- ❖ **False Urgency:** This tactic creates a sense of urgency or scarcity to pressure consumers into making a purchase or taking an action.
- ❖ **Basket Sneaking:** Websites or apps use dark patterns to add additional products or services to the shopping cart without user consent.
- ❖ **Subscription Traps:** This tactic makes it easy for consumers to sign up for a service but difficult for them to cancel it, often by hiding the cancellation option or requiring multiple steps.
- ❖ **Confirm Shaming:** It involves guilt as a way to make consumers adhere. It criticizes or attack consumers for not conforming to a particular belief or viewpoint.
- ❖ **Forced Action:** This involves forcing consumers into taking an action they may not want to take, such as signing up for a service in order to access content.
- ❖ **Nagging:** It refers to persistent, repetitive and annoyingly constant criticism, complaints, requests for action.
- ❖ **Interface Interference:** This tactic involves making it difficult for consumers to take certain actions, such as cancelling a subscription or deleting an account.
- ❖ **Bait and Switch:** This involves advertising one product or service but delivering another, often of lower quality.
- ❖ **Hidden Costs:** This tactic involves hiding additional costs from consumers until they are already committed to making a purchase.
- ❖ **Disguised Ads:** Disguised ads are advertisements that are designed to look like other types of content, such as news articles or user-generated content.

- ✓ In 2022, Google and Facebook faced repercussions due to their cookie banners. These companies were charged of violating EU and French regulations by making it more difficult for users to reject cookies as compared to accepting them.

Global regulation on dark patterns

- Regulators in other jurisdictions such as European Union, USA and UK have taken action against dark patterns involving unfair and deceptive practices in online interfaces which were found to be detrimental to consumers. The activities which the platforms were observed to be indulging include: -
 - Non-consensual enrolment in subscription programs (USA)
 - Pressure selling using misleading countdown clock (UK)
 - Secretly saving credit card information and charging users without consent (USA)
 - Putting in place a cancellation process designed to deter consumers from opting out of subscription (Norway).
- Guidelines from the European Data Protection Board were released in 2022 and offered designers and users of social media platforms practical guidance on how to spot and avoid so-called "dark patterns" in social media interfaces that are in violation of General Data Protection Regulation (GDPR) laws.

Benefits of dark patterns to websites

Depending upon the type of website or app, dark patterns can benefit businesses in several ways.

- ✚ This benefits the business, and since they hide the appropriate options for the customer or end-user, the user has to go ahead with the default or highlighted options, and in case there is no other way, the said service uses up.
 - Thus, it is often used in marketing, however, it isn't a good practice at all.
- ✚ Dark pattern is created with the sole intention to show only those things in the UI or highlight those items in the first place that is profitable to the business in some way or the other.

Challenges with dark patterns

- ⇒ Dark patterns pose a threat because of their impact on user experience and their potential to exploit users financially and in terms of data privacy.
 - Social media companies and tech giants such as Facebook, Apple, Amazon, Skype, LinkedIn, Microsoft, and Google are known to use dark patterns.
- ⇒ Another example of Dark Patterns is the challenge to disable unwanted sponsored messages from influencers. The process is complex, requiring familiarity with platform controls that many users may not have.
- ⇒ Dark patterns distort consumer autonomy using a design architecture which tricks or influences consumers to make choices not in their best interest.

Govt. Initiatives to stop dark pattern

- ❖ The Department of Consumer Affairs and the ASCI have identified the issue and recently taken certain steps to handle the same.
 - Implementing "dark patterns" in its user interface to violate "consumer rights" is defined as "unfair trade practices" as per Section 2(9) of the Consumer Protection Act, 2019. However, with the growing use of e- platforms, a robust legal mechanism is a demand.
 - Consumers can report instances of 'dark patterns' or provide feedback and report such manipulative online practices on the National Consumer Helpline (NCH) by calling '1915' or through Whatsapp on 8800001915.

Way Forward

- ◇ The Indian government should also amend existing laws to specifically address dark patterns. To do this, new rules aimed against deceptive design practices may need to be introduced along with updated consumer protection laws and data protection legislation.
- ◇ With growing penetration of internet and rising smartphone usage in India, consumers are increasingly choosing e-commerce as the preferred mode of shopping. In such a scenario, it is essential that online platforms do not indulge in unfair trade practices by incorporating dark patterns which result in a harmful or undesirable outcome for the consumer.

PEPPER IT WITH

Dark pattern, Consumer Protection Act, 2019, General Data Protection Regulation (GDPR) laws, Advertising Standards Council of India (ASCI)

Liberalised Remittance Scheme

News Excerpt

Recently, the government of India has dropped plans to levy TCS on overseas payments made through international credit cards and has specified that such expenses will be included in the Liberalised Remittance Scheme (LRS) of the RBI.

Pre-Connect

Liberalised Remittance Scheme (LRS)

- The Scheme was introduced on February 4, 2004, by RBI to facilitate hassle-free foreign exchange. Under this scheme, an Indian resident can transfer funds of up to USD 250,000 in a financial year outside India.
- The scheme puts forth that all resident **individuals, including minors, may remit up to \$250,000** each financial year (April-March) out of India for any current or capital account transaction, or a combination of both.
 - In case of remitter being a minor, the LRS declaration form must be countersigned by the minor's natural guardian.
- Relevant transactions may entail private visits to any country (excluding Nepal and Bhutan), gift or donation, emigration, maintenance of close relatives abroad, business travel (or attending specialised conferences), medical treatment and foreign education, among other things.
- The LRS limit has been revised in stages consistent with prevailing macro and micro economic conditions.
- It is mandatory for the resident individual to provide his/her Permanent Account Number (PAN) for all transactions under LRS made through Authorized Persons.

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The Liberalised Remittance Scheme is not available to –

- ❖ Corporates
- ❖ Partnership firms
- ❖ HUF
- ❖ Trusts etc.

Prohibited Items Under LRS

- Remittance for any purpose specifically prohibited under Schedule-I (like purchase of lottery tickets/sweep stakes, proscribed magazines, etc.) or any item restricted under Schedule II of Foreign Exchange Management (Current Account Transactions) Rules, 2000.
- Remittance from India for margins or margin calls to overseas exchanges/ overseas counterparty.
- Remittances for purchase of FCCBs issued by Indian companies in the overseas secondary market.
- Remittance for trading in foreign exchange abroad.
- Capital account remittances, directly or indirectly, to countries identified by the Financial Action Task Force (FATF) as "non-cooperative countries and territories", from time to time.
- Remittances directly or indirectly to those individuals and entities identified as posing significant risk of committing acts of terrorism as advised separately by the Reserve Bank to the banks.
- Gifting by a resident to another resident, in foreign currency, for the credit of the latter's foreign currency account held abroad under LRS.

Tax collected at source (TCS)

- **TCS refers to the tax collected by the seller of a commodity at the time of sale.** It is over and above the price of the commodity and is required to be remitted to the government's account.
- Tax collected at source (TCS) is an extra amount – over and above the sale amount of a particular good/service – that is taken as tax by the seller from the buyer at the time of sale.
- The amount is deposited to the tax authorities. It is important to note that the TCS paid can be adjusted against the tax payable by an individual when the income tax return is filed.
- TCS is **governed by Section 206-C of the Income-tax Act, 1961.**
- The seller is responsible for handing over the tax amount to the government and not the customer.

- The responsibility is sometimes taken over by the aggregator or transactional platform if the seller is not located in India.

➤ **Working Mechanism:**

- Under the mechanism, sellers could be the central government, state government, local authority, statutory authority, corporation and/or company registered under the Companies Act, among others.
- A buyer is classified as a person who obtains goods or the right to receive goods in any sale, auction, tender or any other mode.
- The tax does not apply to Indian individuals if they furnish a declaration that the purchased goods would be utilised for manufacturing, processing or producing articles or things (for purpose of generating power) and not for further sale.
- To put things into perspective, while LRS designates the upper limit of remittance, the TCS threshold would determine when the taxation eligibility is triggered.

➤ **Threshold:**

- Transactions of up to Rs 7 lakh per annum per individual, other than for purchasing overseas tour program packages, do not draw any TCS.
- For example, if an individual spends Rs 8 lakh in a financial year, s/he would not be taxed for the initial Rs 7 lakh spend, but would be charged as per the rate corresponding to the nature of transaction for the additional Rs 1 lakh spend.
- This is not a purpose-specific but a combined threshold; that is, irrespective of the purpose, if an individual's remittances exceed Rs 7 lakh, it would be liable to taxation.

Foreign Exchange Management Act

- ❖ The Foreign Exchange Management Act, 1999 (FEMA), is an Act of the Parliament of India "to consolidate and amend the law relating to foreign exchange with the objective of facilitating external trade and payments and for promoting the orderly development and maintenance of foreign exchange market in India".
- ❖ It was passed in 1999 by parliament, replacing the Foreign Exchange Regulation Act (FERA). This act makes offences related to foreign exchange civil offenses.

Changes in scheme

- ✓ The announcement is significant for the travel industry. It was proposed in the Union Budget that the TCS for purchase of overseas tour packages be increased from 5% to 20% if the upper limit is breached.
- ✓ To give adequate time to Banks and Card networks to put in place requisite IT based solutions, the Government has decided to postpone the implementation of its 16th May 2023 e-gazette notification. This would mean that transactions through International Credit Cards while being overseas would not be counted as LRS and hence would not be subject to TCS.
- ✓ The intent behind the bringing credit cards under the ambit was to remove the differential treatment accorded to credit cards in relation to other modes of foreign exchange.
- ✓ Threshold of Rs. 7 Lakh per financial year per individual in clause (i) of sub-section (1G) of section 206C shall be restored for TCS on all categories of LRS payments, through all modes of payment, regardless of the purpose.
 - Thus, for first Rs 7 Lakh remittance under LRS there shall be no TCS. Beyond this Rs 7 Lakh threshold, TCS shall be

Impact of changes

- ❖ IT sector workers going on company or business trips will be unaffected by the new provisions that apply largely to the rich for buying property, shares and foreign travel.
- ❖ The new provisions will not apply on payments for 'education' and 'medical' purposes and do not impact changes in the use of international credit cards by residents while in India.
- ❖ The announcements come as a temporary relief to taxpayers concerned about the impact of increased rates and enhanced purview of taxation.
- ❖ It puts unnecessary cash flow pressures for taxpayers, while not serving any additional purpose for the government, as far as garnering tax revenues is concerned since ultimately the TCS is available as credit to the taxpayer.
- ❖ These changes also affect Banks and imposes heavy "burden" on them.

- 0.5% (if remittance for education is financed by education loan);
 - 5% (in case of remittance for education/medical treatment);
 - 20% for others.
- ✓ For purchase of overseas tour program package under Clause (ii) of Sub-section (1G), the TCS shall continue to apply at the rate of 5% for the first Rs 7 lakhs per individual per annum; the 20% rate will only apply for expenditure above this limit.
 - ✓ Increased TCS rates to apply from 1st October, 2023: The increase in TCS rates; which were to come into effect from 1st July, 2023 shall now come into effect from 1st October, 2023 with the modification. Till 30th September, 2023, earlier rates (prior to amendment by the Finance Act 2023) shall continue to apply.
 - ✓ The idea behind the announcement was to widen and deepen the tax base and minimise avenues for tax-avoidance.

PEPPER IT WITH

Liberalised Remittance Scheme (LRS), TCS, FEMA, RBI, Income tax act 1961

Conclusion

Deducting TCS is not a hassle. The hassle is certain exemptions and how to fit those exemptions into the system. The exemption of up to Rs 7 lakh created some confusion but the government gave enough time to address it. TCS can be adjusted against the overall tax liability. It can be claimed as an income tax refund or a person can avail of credit while filing the ITR or calculating the advance taxes. The new system will enable the government to track high-value overseas transactions and will not apply on the payments for purchase of foreign goods and services from India.

Open Market Sale Scheme

News Excerpt

In recent days, States have been looking at alternative ways of procuring wheat and rice in the aftermath of the Food Corporation of India's (FCI) quantity restrictions. FCI refused to allow states to procure the two food grains through its Open Market Sale Scheme (OMSS).

Pre-Connect

Open Market Sale Scheme (OMSS)

- This scheme is started by central govt. to curb food supply related issue.
 - Under the Open Market Sale Scheme, the FCI sells surplus food grains time-to-time from the central pool especially wheat and rice in the open market to traders, bulk consumers, retail chains and so on at pre-determined prices.
- OMSS is operationalised by the FCI every year.
- The FCI does this through e-auctions where open market bidders can buy specified quantities at the prices set at the start of a cycle and revised routinely.
- States are also allowed to procure food grains through the OMSS without participating in the auctions, for their needs beyond what they get from the central pool to distribute to NFSA beneficiaries.
- Under the scheme, the procurement of food grains like wheat and paddy for the central pool happens in Rabi and Kharif marketing seasons by the FCI and State corporations according to procurement estimates finalised by the government of India before the seasons. These purchases happen as per the Minimum Support Price.
- Every year OMSS is activated during the lean season, the time between harvests, to improve and regulate domestic supply and availability of the two grains. It brings down their prices in the open market; essentially making the scheme a measure to curb food grain inflation.

Changes in OMSS

- **Reduce Quantity:** Recently, the Centre decided to restrict the quantity that a single bidder can purchase in a single bid under the OMSS.
 - While the maximum quantity allowed earlier was 3,000 metric tonnes (MT) per bid for a buyer, it will now range from 10-100 metric tonnes (MT).
- **Suspension of sale of grains to states:** Central Govt. stopped the sale of rice and wheat from the Central pool under the OMSS to state governments, also disallowing private bidders to sell their OMSS supplies to state governments.
 - However, the sale of rice under the OMSS will be continued for north-eastern states, hilly states and states facing law and order situations, natural calamities at an existing rate of Rs 3,400 per quintal

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Reason given by Central Govt. for changes

- ✓ The rationale given by the FCI is that the quantities have been reduced this time "to accommodate more small and marginal buyers and to ensure wider reach of the scheme".
 - Due to global supply chain shocks like the Russia-Ukraine conflict and hampered production at home, retail food inflation has risen sharply.
 - FCI contends this move will allow the supplies to the general public immediately.
 - The objective behind the move is also to curb retail prices as allowing smaller bids should ideally break monopolies of bulk buyers, allowing more competitive bids by small buyers.
- ✓ Another reason for the move is to meet the FCI's food security obligations because in recent years, production of agriculture crops was affected due to untimely rains, rise in temperature in the month of March and so on, making it incumbent upon the FCI to release its stocks "judicious manner under the OMSS" so that the overall stock position is maintained at a comfortable level".
- ✓ The Centre has explained the discontinuation of OMMS grains to the states by giving the same rationale. "In order to ensure that the inflationary trends are kept under control while ensuring adequate stock levels in the Central pool, it has been decided to exclude State governments from the ambit of OMSS".

Significance of OMSS

- **Price stability:** It is essential to the market's continued price stability. It contributes to the regulation of food grain prices, minimizing excessive changes and guaranteeing affordability for customers, by occasionally selling excess grains at predetermined prices.
- **Surplus Management:** It will help in surplus management. FCI can efficiently manage excess food grains from the central pool, mostly wheat and rice. OMSS can help to avoid waste and maintain ideal stock levels by selling these extra grains on the open market.
- **Market competition:** It promotes market competition by allowing various entities, including traders, bulk consumers, and retail chains, to participate in e-auctions and purchase food grains. It will help to create competitive atmosphere in market which helps the consumers.
- **Balance between large and Small & Marginal Buyers:** Now small and marginal purchasers are to be accommodated by the most recent changes to the OMSS implementation, which also include a decrease in the maximum amount per bid. The scheme will help to advance inclusion, empower smaller market players, and eliminate monopolies held by bulk buyers by encouraging their involvement.
- **Provide Food security:** It will help to provide food security by market competition, price stability and reduce wastage of grains. Proper maintenance of stocks under OMSS will ensures that the eligible population, particularly marginalized sections of society, has access to an adequate supply of essential food grains, such as wheat and rice, at affordable prices.

Challenges for OMSS

- ✚ **Low buyer demand:** In the e-auction conducted in July 2023, the FCI received bids for only 170 MT rice against a quantity of 3.86 lakh MT on offer.

Karnataka vs. Centre row over free rice scheme

- ❖ A political brawl has developed over the Centre's unwillingness to provide additional rice to Karnataka for the newly elected government's flagship Anna Bhagya scheme.

About Anna Bhagya scheme

- ❖ The Anna Bhagya Scheme is the Karnataka government's free rice scheme, under which people belonging to the BPL category have been promised 10 Kg rice every month.

Arguments of Karnataka Govt.

- ❖ State govt. has claimed that the Centre "denied" rice to Karnataka despite having adequate stock "to create problem and scuttle the scheme."
- ❖ Karnataka govt. claimed that central govt.'s move is politically motivated.

Arguments of central govt.

- ❖ According to central govt. the decision was taken to stabilise rising prices.
- ❖ According to GoI, the Government is already providing food grains for 80 crore people. Additionally, 60 crore consumers need to be taken care of. OMSS operations would be carried out in the interest of those 60-crore people so that inflation remains under control for the rest of the country.

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✚ **Issues related to delivery:** The OMSS faces logistical difficulties when dealing with food grain quality, handling, and transportation issues. These difficulties may cause delays and lower client satisfaction.

✚ **Limited impact on market price stabilization:** OMSS impact on stabilizing market prices is limited because it accounts for only a fraction of the total domestic food grain demand and supply. FCI only sells a portion of its holdings through OMSS. Whereas the majority of grains are distributed through the Targeted Public Distribution System (TPDS) and Other Benefits Systems (OWS).

✚ **Political disputes:** Political disputes affect its main objective of welfare of poor population of the country through politically motivated amendments.

PEPPER IT WITH

OMSS, FCI, TPDS, Anna Bhagya scheme, Cooperative federalism

Way forward

⇒ **Consultation with stakeholders:** To achieve the goal of SDG 1 (zero hunger) every stake holder like states, policymakers, experts, FCI etc. should be consulted before any changes in scheme.

⇒ **Strengthening of state level procurement:** State govt. should strengthen the state level procurement to reduce the dependence on central govt. scheme like OMSS.

⇒ **Collaboration & Co-ordination:** Collaboration & coordination between centre and states is very important to achieve the goal of schemes like OMSS, Cooperative federalism and welfare of state.

IMF's view on cryptocurrency

News Excerpt

Recently, the International Monetary Fund (IMF) issued a statement on the use of cryptocurrency in the Latin America and Caribbean market, and about the rising interest in blockchain-based central bank digital currencies (CBDCs).

About Cryptocurrency

- A cryptocurrency is a medium of exchange, such as the rupee or the US dollar, but is digital in format and uses encryption techniques to both control the creation of monetary units and to verify the exchange of money.
- Bitcoin is considered to be the world's best-known cryptocurrency and is the largest in the world according to market capitalisation, followed by Ethereum.
- Bitcoin and the thousands of cryptocurrencies are essentially codes recorded on a blockchain that gets longer and longer as more people use them.

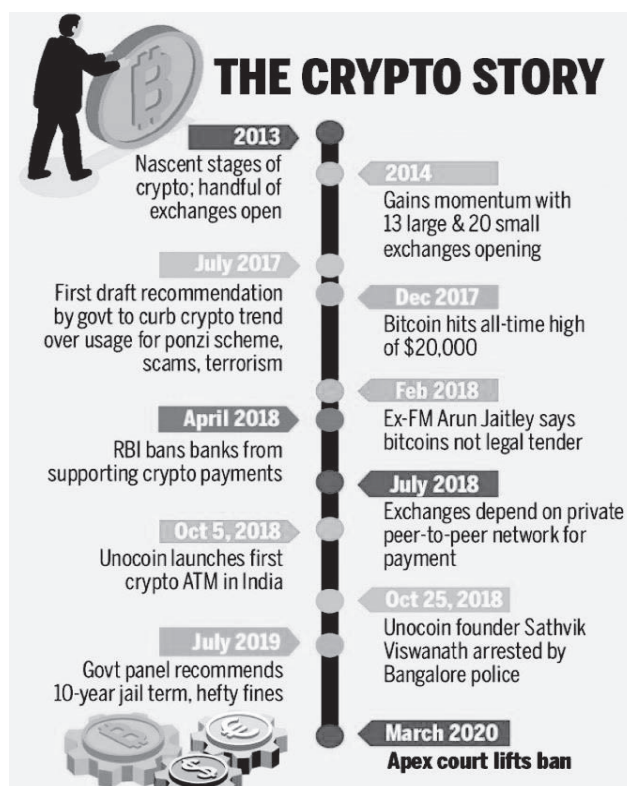
Central bank digital currencies (CBDCs)

- Central Bank Digital Currency (CBDC) is a digital form of currency notes issued by a central bank.
- While most central banks across the globe are exploring the issuance of CBDC, the key motivations for its issuance are specific to each country's unique requirements.
- It is the digital form of a country's fiat currency.
- The Bahamas in the Caribbean was one of the first countries to officially introduce its Sand Dollar CBDC.

Crypto Economy's effect on Latin America

- ✓ Countries like Argentina, Chile, and Columbia have experienced devaluation of their currency against the U.S. dollar. To preserve the value of their savings, some residents have explored converting their funds to U.S. dollars.
- ✓ However, there are legal restrictions controlling this. Others have chosen to convert their assets to stablecoins - cryptocurrencies designed to reflect the value of fiat currencies such as the U.S dollar.

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- ✓ Brazil, Argentina, Colombia, and Ecuador are among the top 20 in Chainalysis' 2022 Global Crypto Adoption Index.

Crypto Ecosystem

- Operational, cyber, and governance risks
- Integrity (market and AML/CFT)
- Data availability/reliability
- Challenges from cross-border activities

Impact of IMF's New approach

Positive

- Weak central bank credibility and a vulnerable banking system can trigger asset substitution as domestic residents seek a safer store of value. Dollarization pressures are a persistent risk for several emerging market and developing economies.
- The crypto ecosystem can help domestic residents convert some of the headwinds of traditional dollarization—such as exchange rate restrictions and challenges in accessing and storing foreign assets into tailwinds.
- The rapid growth of the crypto ecosystem can present new opportunities. Technological innovation is ushering in a new era that makes payments and other financial services cheaper, faster, more accessible, and allows them to flow across borders swiftly.
- Crypto asset technologies have the potential as a tool for faster and cheaper cross-border payments. Bank deposits can be transformed to stable coins that allow instant access to a vast array of financial products from digital platforms and allow instant currency conversion.

Negative

- ✚ The adoption of a crypto asset as the main national currency can carry significant risks of macro-financial environment.
- ✚ The banking sector can also come under pressure if the crypto ecosystem becomes an alternative to domestic bank deposits or even loans. Stronger competition for bank deposits through stablecoins held on crypto exchanges or private wallets may push local banks toward less stable and more expensive funding sources to maintain similar levels of loan growth.
- ✚ It is much more volatile than equities or commodities or even exchange rates. So, it can pose instability in countries' economy.
- ✚ Transaction costs can be fairly expensive as compared to digital money.
- ✚ It can pose some operational and financial integrity risks from crypto asset providers, investor protection risks for crypto-assets and DeFi, and inadequate reserves and disclosure for some stable coins.

Stablecoin is a type of cryptocurrency where the value of the digital asset is supposed to be pegged to a reference asset, which is either fiat money, exchange-traded commodities (such as precious metals or industrial metals), or another cryptocurrency.

IMF reaction to El Salvador's Bitcoin adoption

- ❖ The IMF specified that it was against El Salvador's move due to fiscal risks and consumer protection issues.
- ❖ IMF's executive directors urged the authorities to narrow the scope of the Bitcoin law by removing Bitcoin's legal tender status.
- ❖ It was also told to El Salvador that its adoption of Bitcoin might affect its application for a loan of \$1.3 billion.
- ❖ This is why IMF's latest blog post on crypto and CBDC use in Latin America and the Caribbean came as a surprise to many.

stability, financial integrity, consumer protection, and the

Difference between cryptocurrency and CBDCs

Cryptocurrencies and CBDCs are both blockchain-based digital currencies. But while cryptocurrencies are generally run by private companies or individuals, a CBDC is controlled and tracked by a country's central bank and corresponds to that country's fiat currency.

Bitcoin's price may vary by hundreds or even thousands of dollars in a short period of time, and its founder is not clear. On the other hand, a CBDC such as the eNaira, issued by the Central Bank of Nigeria, would (ideally) be worth as much as its physical counterpart.

While investors often buy large quantities of Bitcoin or other cryptocurrencies and hold them in the hope of making a profit, this doesn't make sense in the case of CBDCs as they are not meant to be investment vehicles.

Conclusion

Cryptocurrencies are still in the initial stages and the technology is constantly evolving. So, if cryptocurrencies are evolved in such a way that the loopholes are solved, they may compete with the formal financial institutions. IMF's recent stand towards crypto economy will definitely help to improve crypto technologies and reduce challenges related to it.

PEPPER IT WITH

IMF, Cryptocurrency, CBDC

Sugar subsidies dispute and WTO

News Excerpt

India is negotiating with Brazil to resolve a sugar dispute at the World Trade Organisation (WTO). In 2019, Brazil, Australia and Guatemala dragged India into the WTO's dispute settlement mechanism alleging that India's sugar subsidies to farmers are inconsistent with global trade rules.

Pre-Connect

- India emerged as the world's largest producer and consumer of sugar and the world's 2nd largest exporter of sugar in 2021-22 season.
- Brazil is the largest exporter of sugar in the world

Key points of the Issue

- Brazil, Australia and Guatemala sought consultations with India, concerned about domestic support measures to agricultural producers of sugarcane and sugar.
- They alleged that India for five years, from 2014-15 to 2018-19, provided domestic support in excess of the permissible 10% of the total value of production—thus, inconsistent with the norms laid out under the organisation's Agreement on Agriculture.
- The countries argued that the minimum prices of sugarcane and sugar, specifically fair and remunerative prices (FRP) alongside specific states enforcing higher minimum prices, incentivised Indian sugarcane farmers.
 - This led to increased domestic production of sugarcane and sugar.
 - It contended that with production exceeding domestic demand, and ensuing increases in sugar stocks, the government also intervened in the market with assistance programmes, thereby facilitating lowered prices for the commodity in the global market.
- The complainant also argued against India's mill-specific Minimum Indicative Export Quota (MIEQ) wherein sugar mills must export an allocated amount of sugar by the end of each season (October-September).
 - It alleged that certain support measures were dependent on compliance with the MIEQ, or otherwise dependent on export performance.
- WTO constituted a panel to study the allegations in October 2019, which submitted its report in December 2021.

WTO's Conclusion

- The multilateral trade organisation held that India was acting inconsistently with its obligations under Article 7.2 (b) of the Agreements on Agriculture (AoA) as far as the domestic support was concerned.
 - This article stipulates that members cannot provide support in excess of the relevant de minimis standards (For developing states it is 10 per cent).

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World Trade Organisation(WTO)



It officially commenced operations on 1 January 1995, pursuant to the 1994 Marrakesh Agreement, thus replacing the General Agreement on Tariffs and Trade (GATT) that had been established in 1948.



The World Trade Organization is an intergovernmental organization that regulates and facilitates international trade.



The World Trade Organization (WTO) is the only global international organization dealing with the rules of trade between nations.



Member:- 164 members representing 98 per cent of world trade
Headquarter:- Geneva, Switzerland
Director General:- Ngozi Okonjo-Iweala

Dispute settlement process in WTO

- According to WTO rules, a WTO member or members can file a case in the Geneva-based multilateral body if they feel that a particular trade measure is against the norms of the WTO.
- As for the proceedings in the WTO, bilateral consultations are the first step to resolve a dispute.
- If the sides are unable to resolve the matter through consultation, either can approach the dispute settlement panel.
- The latter files a report which can be challenged before an Appellate Body.
- However, the body is unable to review cases at present given ongoing vacancies, emerging from differences among member countries in appointing members.

Agreement on Agriculture (AoA)

AoA is a treaty of WTO which focuses on reducing the agricultural support and subsidies provided to domestic producers by respective countries. It is one of the most contentious agreements within the WTO.

- ✓ It held that the 'price support' would entail "assistance from a government or other official body in maintaining prices at a certain level regardless of supply or demand." In FRP, while the prices may appear to be paid by the mills, they are set by the government.
- ✓ The WTO asked India to withdraw its exports subsidies within 120 days from the circulation of the report. It also sought that the country withdraw the proscribed subsidies (as per the multilateral organisation's rules) meant for production assistance, buffer stock, marketing and transportation along with the duty-free import authorisation (DFIA) scheme.
- ✓ The report concluded that India was providing "lump sum assistance" for expenses emanating on account of sugar towards maximum admissible export quality or MAEQ (which works as a marketing assistance listing upper limit for exports) of sugar mills for the sugar season 2019-20.
 - It broadly covered marketing including handling, quality upgradation, debagging and re-bagging and other processing costs.

Indian Sugar Mills Association (ISMA)

It is a premier sugar organization in India. It is the interface between Government and private sugar mills in the country.

Its objective is to ensure that the functioning and interest of the private sugar mills in the country are safeguarded through conducive and growth-oriented policies of the Government.

It was established in 1932.

Three Boxes

GREEN BOX	BLUE BOX	AMBER BOX
Permitted subsidies	Aim to limit production	Subsidies to be reduced and removed
Not targeted at particular products and not include direct income supports for farmers	Only production limiting subsidies are allowed	Linked to production level
No limit is fixed	No limit is fixed	WTO fixed the limit
Little or no distortion	Don't increase with production	Excessive production trade distort
May include environmental protection, regional development, R&D or farmer training programs etc.	Cover payments based on acreage, yield or number of Livestock in a base year	Input subsidies-electricity, seeds, fertilizers, imigation etc

India's Defence

- The Indian government stated the panel had made "certain erroneous findings" about the schemes meant to support sugarcane producers and exports. It held the findings of the panel were "completely unacceptable to India".
- According to indian govt., the panel's findings are unreasoned and not supported by the WTO rules. The panel has also evaded key issues which it was obliged to determine. Similarly, the panel's findings on alleged export subsidies undermine logic and rationale.
- The measures in contention were within its obligations under the WTO agreements, and that there would be

Sugar production & Export in India

- ❖ India is not considering sugar exports until at least the first half of the next season.
 - Because the government was worried that El Nino weather pattern could reduce rainfall and dent production.
- ❖ India had allowed exports of 6.1 million tonnes for the ongoing season. With the quota exhausted, it is presently not exporting sugar.
- ❖ Industry body Indian Sugar Mills Association (ISMA) lowered its production estimates to 32.8 million tonnes for the ongoing sugar season, owing to an output drop in Maharashtra and a marginal increase in Uttar Pradesh.
 - Annual domestic consumption is pegged at 27.5 million tonnes.
- ❖ For comparison, India had exported 11 million tonnes in the year-ago period. The production stood at 35.9 million tonnes.
- ❖ These situations translate to potential grounds for price uncertainty domestically and outside; especially since more demand for sugar rises during summer for producing aerated beverages and ice creams.

no impact on the country's existing policy measures in the sector.

- India appealed that the panel "grossly errs" in holding that the MAEQ were of the "same essence" as other alleged export subsidies. "India considers that the panel has cherry-picked a few broad similarities while ignoring the differences between MAEQ and other alleged exports subsidy measures.
- Further, it contended that FRP and state-advised prices do not constitute 'applied administrative prices', that is, prices for agricultural products determined by administrative actions of the government and not market forces.
 - It was before the consultations that India had argued that market price support could only exist when the government or its agents pay or procure the product.
- Thus, it would be incorrect to conclude that India provided any market price support to sugarcane producers.

The bilateral trade between India and Brazil increased to USD 16.6 billion in 2022-23 as against USD 12.2 billion in 2021-22. Trade gap is in the favour of

Concerns about the WTO ruling

- ✚ It may potentially spiral on two fronts—
 - Agricultural subsidies in the broader ecosystem and
 - Potential uncertainty about its prices in lieu of expected lower production.
- ✚ Interestingly, the appellate body of the WTO is not functioning because of differences among member countries to appoint members in this body. Several disputes are already pending with the appellate body. The US has been blocking the appointment of the members.

PEPPER IT WITH

WTO, Sugar industry, Bilateral trade, Trade disputes, ISMA, Agreement on Agriculture

Way forward

- ⇒ Bilateral consultation is the first step to resolve a dispute. Hence, Indian govt. should organise bilateral talk related to sugar production and export with the concerned nations.
- ⇒ All the WTO member should work together for the appointment of WTO appellate body so that appeal can be resolved.

Internationalisation of rupee

News Excerpt

Recently the Reserve Bank of India's (RBI) inter-departmental group (IDG) said, with India remaining one of the fastest-growing countries and showing remarkable resilience in the face of major headwinds, that the rupee has the potential to become an internationalised currency.

Internationalisation of the rupee

- Internationalisation is a process that involves increasing the use of the rupee in cross-border transactions.
- It involves promoting the rupee for import and export trade and then other current account transactions, followed by its use in capital account transactions. These are all transactions between residents in India and non-residents.

Requirements for Internationalisation:

- The internationalisation of the currency, which is closely interlinked with the nation's economic progress, requires further **opening up of the currency settlement and a strong swap and forex market.**
- More importantly, it will require **full convertibility of the currency** on the capital account and cross-border transfer of funds without any restrictions. India has allowed only full convertibility on the current account as of now.
- Currently, the **US dollar**, the Euro, the Japanese yen and the pound sterling are the leading reserve currencies in the world. China's efforts to make its currency renminbi has met with only limited success so far.

Reasons for the dominance of US dollar

- ❖ The dollar's position is supported by a range of factors, including-
 - the size of the US economy,
 - the reach of its trade and financial networks,
 - the depth and liquidity of US financial markets, and
 - a history of macroeconomic stability and currency convertibility.

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Advantages of internationalisation of the rupee

- The use of the rupee in **cross-border transactions mitigates currency risk** for Indian businesses.
- **Protection from currency volatility** not only reduces the cost of doing business, it also enables better growth of business, improving the chances for Indian businesses to grow globally.
- Reserves help **manage exchange rate volatility and project external stability**; they impose a cost on the economy.
- Internationalisation of the rupee **reduces the need for holding foreign exchange reserves**. Reducing dependence on foreign currency will make India less vulnerable to external shocks.
- As the use of the rupee becomes significant, the **bargaining power of Indian businesses would improve**, adding weight to the Indian economy and enhancing India's global stature and respect.

Challenges to internationalisation of rupee

- ✓ **Volatility issue:** Volatility of rupee is bigger issue in international market. Fluctuations in the value of the rupee can impact trade competitiveness, foreign investment flows, and financial stability in the international market.
- ✓ **Capital related issue:** As a capital deficient country, India needs foreign capital to fund its growth. If a substantial portion of its trade is in rupee, non-residents would hold rupee balances in India which would be used to acquire Indian assets.
 - Large holdings of such financial assets could heighten vulnerability to external shocks, managing which would necessitate more effective policy tools.
- ✓ **Lack of Internationalisation efforts:** India hasn't taken any major step towards internationalisation of rupee.
- ✓ **Competitions with other currencies:** Indian currency have to face the competition with US dollar, Chinese renminbi, British pound sterling etc. so it is not going very easy to become relevant in current world order.
- ✓ **Adoption by market participants:** It is bigger challenge in the process of internationalisation of rupee to acceptance and adoption by market participants. There is need of trust, familiarity, and confidence in the currency. Building trust, confidence and promotion of rupees' benefit is another big challenge.

Current status of international currencies

- ❖ Currently, the US dollar is said to enjoy an 'Exorbitant Privilege', which refers to the innumerable benefits that accrue to the US on account of all other countries of the world using the US dollar as their currency in most of their international transactions, among global currencies.
- ❖ According to the RBI's working group, the obvious challenger to the US dollar dominance is the Chinese Renminbi.
 - However, its ability to rival the US dollar will depend on future policies in both the US and China and the ability of the Chinese economy and its financial system to demonstrate the same long-term resilience, integrity, transparency, openness and stability, which are characteristics of the US economy.
- ❖ China, Russia and a few other countries would like to reduce their reliance on the US dollar and its financial markets as well as their dependence on dominant international payment mechanisms based on the Society for Worldwide Interbank Financial Telecommunications (SWIFT) messaging system.

Recommendations of RBI panel for internationalisation of rupee

- As part of the long-term measures to achieve internationalisation of the rupee, the panel suggested inclusion of the rupee in **SDR (Special Drawing Rights)** basket.
- For the short term, the group has suggested-
 - **adoption of a standardised approach** for examining the proposals on bilateral and multilateral trade arrangements for invoicing,
 - **settlement and payment in the rupee and local currencies,**

- ❖ The **SDR** is an international reserve asset created by the IMF (International Monetary Fund) to supplement the official reserves of its member countries. The value of the SDR is based on a basket of five currencies-
 - the U.S. dollar,
 - the euro,
 - the Chinese renminbi,
 - the Japanese yen, and
 - the British pound sterling.

- encouraging the opening of the rupee accounts for non-residents both in India and outside India and integrating Indian payment systems with other countries for cross-border transactions.
- Over the next two to five years (For medium term), the group has recommended-
 - a review of taxes on masala (rupee-denominated bonds issued outside India by Indian entities) bonds,
 - International use of Real Time Gross Settlement (RTGS) for cross-border trade transactions and inclusion of Indian Government Bonds in global bond indices.
- India should use the existing bilateral and multilateral payment and settlement mechanisms, such as ACU (Asian Clearing Union), to internationalise the rupee.
- The RBI should also look at expanding the footprint of rupee denominated payment mechanism.
- The RBI should step up measures for the inclusion of Indian Government Bonds (IGBs) in global bond indices and also suggested rationalisation of the FPI regime to facilitate a more conducive environment for foreign investments into the Indian debt markets (both government and corporate).
- It suggested strengthening the financial market by fostering a global 24×5 rupee market and recalibration of the FPI (foreign portfolio investor) regime.

PEPPER IT WITH
RBI, SDR, Currency swap,
Currency convertibility

Conclusion

Countries are pushing for de-dollarization to reduce the dependence on the U.S. dollar for cross-border transactions. So, this situation presents an opportunity to push for the internationalisation of the Rupee. But for internationalisation of rupee structural reforms is necessary. Scale, stability and liquidity can be achieved through strong economic fundamentals and a process-driven regulatory environment. These, by themselves, are important policy goals to achieve for India. It is possible that once these are achieved, the rupee will come to be accepted as an international currency.

Credit information companies

News Excerpt

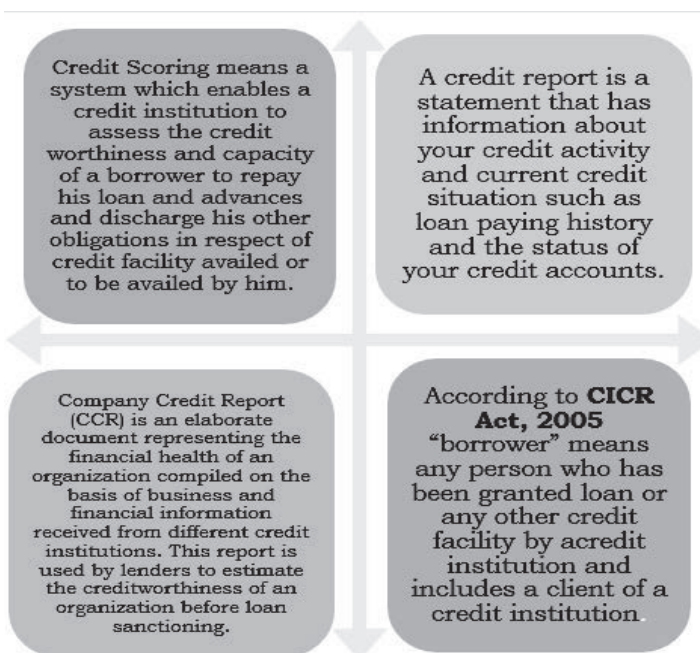
Recently, the Reserve Bank of India penalised four credit information companies (CICs) due to their failure to update credit information of borrowers.

Pre-Connect

Credit Information Company (CIC)

- **Credit Information Company (CIC) or Credit Bureau** is an RBI-licensed and authorized organization that collects, maintains and analyses the consumer and business credit information of individuals and companies across the nation, as provided by the financial institutions.
- Based on the provided data, Credit Information Company prepares Credit Information Report (CIR) for individuals and Credit Company Report (CCR) for companies. CIC further calculates and generates credit scores for individuals and credit ranks for companies as per their creditworthiness and past credit history.
- Currently, there are **four CICs** —
 - Credit Information Bureau (India) Ltd (CIBIL),
 - Equifax Credit Information Services Pvt Ltd,
 - Experian Credit Information Company of India Pvt Ltd and
 - CRIF High Mark Credit Information Services Pvt Ltd.
- These companies are governed by the **Credit Information Companies (Regulation) Act (CICRA)**-2005.

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RBI's Action on CICs

- The central bank slapped a monetary penalty of-
 - Rs 26 lakh on Trans Union CIBIL Ltd,
 - Rs 24.75 lakh on Experian Credit Information Company of India Pvt Ltd,
 - Rs 24.25 lakh on Equifax Credit Information Services and
 - Rs 25.75 lakh on CRIF High Mark Credit Information Services, for non-compliance with certain provisions of the act and rules governing credit information companies.
- The RBI issued notices to these companies advising it to show cause as to why penalty should not be imposed for its failure to comply with the provisions of the CIC (R) Act read with CIC Rules.
- The RBI came to the conclusion that the charge of non-compliance with various provisions were substantiated and warranted imposition of monetary penalty on the company.

Importance of CICs

- ❖ They rate the borrowers in a scale of 300-900 with 900 being the highest rating. Banks and finance companies normally take decision on the rating given by the credit bureaus.
 - The lender on the basis of Company credit Report and credit score decides whether to grant the borrower the loan or not. A Credit report is equally important as any other factors used to determine the financial position of the company.
- ❖ CIC is playing a vital role in developing the behaviour-based credit risks models and this helps in introducing healthy competition, innovation in the Indian Financial system.
- ❖ CIC's role is most important because they help-
 - To discourage repeat defaulters and concurrent borrowers
 - To study and assess the risk posed by its customers to minimise undesirable customer selection
 - To successfully carry out their statutory and regulatory obligations
 - To successfully carry out the duties of a credit rating agency
 - To minimise unfavourable consumer choices
 - To successfully carry out their statutory and regulatory obligations

Reasons for RBI Action

- ✓ The RBI had received many complaints from customers about CICs not updating the status of borrowers. Many customers had complained that when they rectified a default issue or pointed out a wrong classification, the CICs failed to act within the stipulated timeframe.
- ✓ As a result, many customers were unable to get loans or credit cards as banks access the database of CICs and the rating given by them while taking decisions on loan and card sanctions.

Table 1: Benefits of Credit Information Flow to Different Stakeholders

Stakeholder	Benefits
Lenders, Creditors, alternative data providers	<ul style="list-style-type: none"> Stakeholders are able to see the client's complete range of credit obligations, payments status, and level of indebtedness or over indebtedness. Stakeholders are able to price risk appropriately and provide custom products and services to meet the specific needs of clients. Stakeholders can assess new borrowers with no formal credit histories (specifically low- income groups, women borrowers, small and medina-size enterprises). Stakeholders have tools to proactively manage consumer accounts, such as credit line increases and decreases, payment terms, interest rates, and so on. Stakeholders can proactively manage collections so as to make the collections process more streamlined and to expend effort where needed to maximize collections where recovery rate is highest.
Consumers	<ul style="list-style-type: none"> Credit reporting enables consumers to establish "Reputational collateral", based on credit histones, thus reducing the need for physical collateral. Consumers with on-time payments, no missed payments, and other good borrowing and repayment behaviour will stand to benefit and creditors may offer them better terms of credit or higher credit lines. Consumers can benefit from reporting of nontraditional data, such as payments for telephone bills, utilities and other charges, to the credit bureau. Those consumers that do not have formal relationships with banks and other creditors can show that they meet other payment obligations responsibly and are worthy of credit.
Regulators and supervisors	<ul style="list-style-type: none"> Comprehensive information sharing enables regulators and supervisors to develop appropriate regulatory tools to assist in macro and micro prudential supervision. It provides supervisors with the necessary information to support systemic risk monitoring and prudential supervision.

Concern with CICs

- Wrong information or late information provided by the CICs can affect credit score of any individual or company.
- Data manipulation is another concern related to it.

Way forward

- CICs and banks are supposed to keep the credit information collected/ maintained by them, updated regularly on a monthly basis or at such shorter intervals as may be mutually agreed upon between the banks and the CICs.
- Credit information companies should provide proper credit rating and credit report to the individual and companies and bank also.
- Proper Surveillance and assistance to CICs should be provided by RBI.

Finfluencers under SEBI's scrutiny

News Excerpt

The market watchdog SEBI will formulate rules and guidelines to regulate the unregistered **financial influencers or "finfluencers"** who offer investment advisors to the public.

About Finfluencers

- Finfluencers are people with public social media platforms **offering advice and sharing personal experiences about money and investment in stocks.**
- Their videos cover budgeting, investing, property buying, cryptocurrency advice and financial trend tracking.

Issues related to it

- Finfluencers have drawn the ire of the investors' community, given that they provide unsolicited 'stock' tips on various social media platforms without being registered investment advisers.
- It is unclear if these influencers have any educational or professional qualifications to offer such financial advice, and if there is any kind of monetary transaction that happens between them and the entity they are promoting.
- Some of them have lakhs of followers with their investment advice being closely followed by millions of people across the country.
 - They post videos in English, Hindi and a mix of English and Hindi. What has raised concern is that scamsters are using this route to manipulate share prices.
- There are numerous unregistered finfluencers who are manipulating the market and offer qualified advice to the gullible public and earn huge money by way of commission from these platforms on one hand and on the other from the market by transacting on those stocks they talked up or talked down.
- There is the issue of unregistered investment advisors, who pose greater risks to gullible investors. More importantly, we see examples of misuse of their SEBI registrations by even some registered advisors.

Steps taken by SEBI

- The Board has decided to tighten the disclosure norms for large foreign portfolio investors.
- SEBI has been cautioning the public against falling into their advisory traps on one hand and also hinting at bringing out regulations to contain their free-run.
- Earlier, SEBI had clamped down on some WhatsApp groups and Telegram channels, which were used to leak key market-moving data.
- SEBI has been planning to direct brokers, mutual funds to limit use of financial influencers to curb the spread of financial advice via social media advertising and marketing campaigns through such influencers.
- In its guidelines, SEBI will make it mandatory for social media influencers to register and make them follow most of the other norms that are applicable to the registered financial advisors.
- SEBI has been constantly enhancing its technology and surveillance prowess.

Steps taken by other institutions

- The Advertising Standards Council of India (ASCI) released new guidelines for social media influencers and other advertisers about publishing ads about virtual digital assets (VDA) including cryptocurrencies and non-fungible tokens (NFTs), in line with the government and Reserve Bank of India's long-held stance on cryptocurrencies.
- As per the guidelines, all advertisements for VDA products, VDA exchanges or featuring VDAs should carry a disclaimer that says, "Crypto products and NFTs are unregulated and can be highly risky. There may be no regulatory recourse for any loss from such transactions".

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- ASCI also released its half-yearly report of complaints it received between April-September 2022, detailing social media influencers that were found to be non-compliant with its advertising guidelines.
- The Centre has mentioned that the disclosures in advertisements should be displayed prominently and not in the form of hashtags or links, in the interest of consumers.

Advertising Standards Council of India (ASCI)

- ❖ **ASCI** is a voluntary self-regulation council, registered as a **not-for-profit company** under Section 25 of the Indian Companies Act.
- ❖ The ASCI, **established in 1985**, is committed to the cause of self-regulation in advertising, ensuring the protection of the interests of consumers.
- ❖ ASCI seeks to ensure that advertisements conform to its Code for Self-Regulation, which requires advertisements to be legal, decent, honest and truthful, and not hazardous or harmful, while observing fairness in competition.

Related Concerns

- SEBI has even cracked down on those indulging in manipulation through stock tips on Telegram and WhatsApp, but the regulator has so far lacked any effective regulations.
- Ponzi schemes are still a big concern in the security market.
 - A Ponzi scheme is an investment fraud where existing investors are paid for the investments made by new investors.
 - The new investors do not receive any return on their investments and often even lose the entire amount.
- Wrong information can affect adversely to stock market and Investors.

Govt. Initiatives

- ⇒ In 2019, the government enacted a law called the Banning of Unregulated Deposit Schemes Act, 2019, which looks to prevent unregulated entities from collecting deposits and duping the poor and gullible of their hard-earned savings.

Way forward

- Proper guidelines for the finfluencers, Investors and regulating firms is a need of the hour.
- SEBI should tighten their surveillance to stop such concerning activity so that the rights of the investors can be secured.

Differential time-based electricity tariffs

News Excerpt

Recently, The Union Power Ministry has amended the Electricity (Rights of Consumers) Rules, 2020, and the changes included the introduction of time-of-day (ToD) tariff provisions.

Changes in Electricity Rules, 2020

- The current amendment to the Rules is a continuation of the measures taken by the government, to empower power consumers, to ensure 24X7 reliable electricity supply at affordable cost, and to maintain a conducive ecosystem for investment in the power sector.
- The changes are:
 - Introduction of Time of Day (ToD) Tariff, and
 - Rationalization of smart metering provisions.
- Government has simplified the rules for smart metering.
 - To avoid inconvenience / harassment of the consumers, the existing penalties for increase in consumer's demand beyond the maximum sanctioned load / demand have been reduced.
 - As per the amendment in metering provision, post installation of a smart meter, no penal charges will be imposed on a consumer based on maximum demand recorded by the smart meter for the period before installation date.
- Load revision procedure has also been rationalized in a way that maximum demand shall be revised upwards only if sanctioned load has been exceeded at least three times in a financial year.

About Time-of-Day (ToD) tariff

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- Time of Day (TOD) tariff, is recognized globally across electricity industries, as an important Demand Side Management (DSM) measure which is used as a means of incentivizing consumers to shift a portion of their loads from peak times to off-peak times, thereby improving the system load factor by reducing the demand on the system during peak period.
- Broadly, time-based power tariff structures can be static — predetermined tariffs based on time blocks — or dynamic — determined on a real-time basis in accordance with the actual demand conditions. There are some other variants as well, but those are combinations of static and dynamic pricing models.
- Under the ToD tariff system, the power tariff during “solar hours” — the duration of eight hours a day as specified by the respective State Electricity Regulatory Commission (SERC) — of the day shall be at least 20 per cent lower than the normal tariff.
- On the other hand, tariffs during peak hours will be at least 20 per cent higher than the normal tariff for commercial and industrial consumers, and at least 10 per higher for other consumers.
- ToD tariff would be applicable for Commercial and Industrial consumers having Maximum demand of 10 KW and above, from 1st April, 2024 and for all other consumers **except agricultural consumers**, latest from 1st April, 2025.
 - Time of Day tariff shall be made effective immediately after installation of smart meters, for the consumers with smart meters.

Potential benefits of ToD power tariffs

ToD tariff system is described as a “win-win” proposition for consumers as well as the country’s power system.

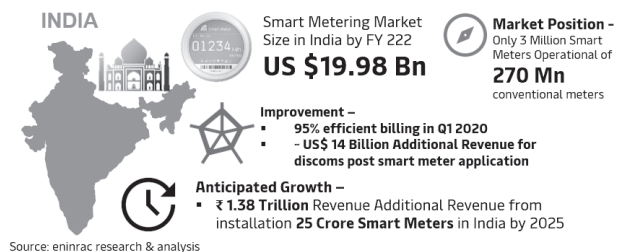
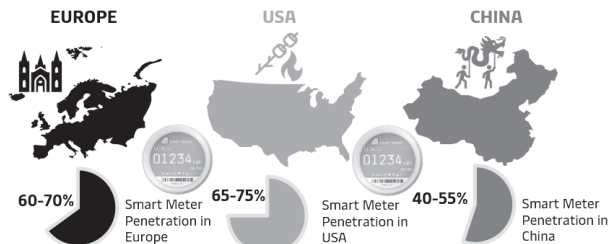
✓ For Consumer

- The TOD tariffs, which are separate tariffs for **peak hours, solar hours, and normal hours**, send price signals to consumers to **manage their load** according to the tariff.
- With awareness and effective utilisation of the ToD tariff mechanism, **consumers can reduce their electricity bills**. Since solar power is cheaper, the tariff during the solar hours will be less, so the consumer benefits.
- The move is expected to provide some flexibility to consumers to plan and optimise their electricity consumption so that the major share of their power use falls in the discount window.
- The objective of the move is to offer a nudge to consumers to optimise their electricity consumption, especially during peak hours. This is also a major demand side management (DSM) tool that is expected to result in better grid integration of the increasing share of renewable power in India.

✓ For Govt. and service providers

- During the non-solar hours, mostly thermal, hydel and gas-based power is consumed, which is relatively costlier than solar power. Hence, tariffs during non-solar hours will be relatively higher, reflecting the higher cost of electricity.
- As for peak power consumption hours, the government hopes to discourage consumers from placing excessive load on the grid with higher-than-normal tariffs.
- If the load on the grid during peak consumption hours goes down, the requirement for additional **investments in grid infrastructure for maintenance and upgradation also declines** over the medium to long term.
- The government also expects the **ToD tariff structure to lead to better integration of renewable energy sources with the country’s electricity grid**, which will hopefully expedite India’s energy transition.
- The **ToD tariff will improve the management of renewable generation fluctuations, incentivize demand increase during the periods of high RE generation hours and thereby increase grid integration of larger quantities of renewable power.**

Smart Meter Penetration in India & World – Opportunity for 270 Mn Smart Meters Installation in India



Challenges for ToD tariff

- **Lack of basic Infrastructure:** There are five common power supply problems in India: voltage and current issues at the input and output, reversed polarity, temperature issues, and missing external components. These problems reflect the lack of infrastructure.
- **Lack of smart metering:** Smart metering is still not available to lots of areas in the country. It will affect the ToD tariff implementation programme adversely.
- **Lack of awareness:** Lots of users are not aware about the smart metering as well as ToD tariff and its proper utilization. Even there are lot of people who doesn't know about their rights and responsibilities related to power consumption.
- **Proper Implementation:** Proper implementation is the bigger issue in India. Lots of programmes related to energy security and renewable energy run by the government but due to their proper implementation we have still energy shortage.
- Some fields **like Agriculture** are out of the tariff plan and got subsidies, while it is a prominent sector that uses electricity at the time of irrigation. It will violate the right of common man.

Issues related to Energy security

- ✚ In order to operationally sustain a huge monthly addition of an average of 1,000 MW from non-fossil fuels or renewables to the electricity grid, policymakers are of the view that India needs to **urgently work on developing viable energy storage options.**
- ✚ India's 40% of installed electricity capacity comes from non-fossil fuel sources. This green push has resulted in a sharp 24 per cent reduction in the emission intensity of GDP between 2005 and 2016, but **it has also thrown up challenges of a grid being increasingly powered by renewables.**
- ✚ Even as the Lithium-ion storage battery option for grid application is now being ruled out as unviable, at least for now, an emerging policy push in the direction of solar and wind-based generation cannot continue to be pushed down to struggling electricity distribution companies or DISCOMS.
- ✚ According to sectoral experts, the renewables challenge is compounded by the fact that SECI (Solar Energy Corporation of India Ltd) — the state-owned company conducting solar auctions — has locked a number of contracts involving green developers in rigid PPAs (power purchase agreements) with no scope for innovation.
- ✚ Energy storage is needed alongside green energy sources to primarily balance out the variability in a renewable generation – electricity is generated only when the sun shines or when the wind blows. This is not always in sync with the demand cycle. Storage can help tide over this shortcoming associated with renewables.
- ✚ The main challenge is the non-availability of natural gas to run gas turbines to complement the growing RE capacity in the generation mix. India's vast fleet of coal-based power plants of 200 MW series is more than 25 years old, runs on old technology and does not promise robust reliability.

Way Forward

- ⇒ ToD tariffs, especially at the consumer level, are contingent on smart metering being implemented at the unit level, and users being made aware of how to optimise their consumption patterns to take advantage of the scheme.
- ⇒ The entire exercise needs a fresh approach to consumer awareness and education by the distribution utilities and other entities. Hence consumer awareness education program will be very important.
- ⇒ To achieve the target of SDG 7 (Affordable and clean energy), Sustainable use of energy is very important at the time of energy crisis at current world.

PEPPER IT WITH

ToD Tariff, Smart metering, Energy security, SDG 7, Electricity (Rights of Consumers) Rules, 2020

INTERNATIONAL RELATIONS

India–Russia Oil diplomacy

News Excerpt

India is now **importing 25%** of its crude oil requirement from **Russia**. Russia has **surpassed** traditional sellers like Iraq and Saudi Arabia.

Pre-Connect

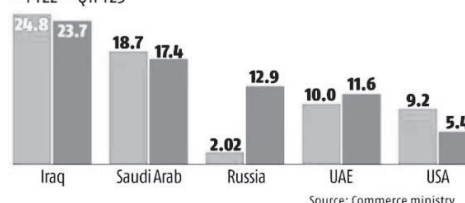
India-Russia trade has reached an all-time high of **\$39 billion in 2022**, more than three times the bilateral trade of \$11.5 billion in 2021.

How oil is driving India's international relations

- **Requirement:** Around **85%** of India's oil requirement is met through **imports**. India is the third largest importer of energy globally. It directly impacts the **budget deficit** and **foreign exchange spending**.
- **Strategic Petroleum Reserves:** India is currently trying to fill its strategic petroleum reserves. It is hopeful to become a **member** of International Energy Agency (IEA).
- **Exporting petroleum products:** India has a petroleum **refining capacity** of **5 million** barrels per day (**bpd**), equal to those of the United Kingdom, Italy, Turkey and France combined. India is exporting refined petroleum products to several nations of **Africa, Latin America** and **European Union**.
- **Leverage:** **Russia, US** and **West Asia** want to keep India on their side and would not want to risk losing the country as an oil export market. India stands at **bargaining position** in front of them.
- **Engagement:** **China** and **Turkey** are also importing oil from Russia. India is engaging constructively with both of them, especially Turkey. India had helped Turkey with **Operation Dost**, after Turkey-Syria earthquake.
- **ONGC Videsh:** It is working on **exploration, development**, and **production** of oil and gas in around **15 countries** viz. Azerbaijan, Bangladesh, Brazil, Colombia, Mozambique, Myanmar, South Sudan, Venezuela and Vietnam.
- **OPEC:** India holds institutional **dialogue** with Organization of Petroleum Exporting Countries (OPEC). **2nd India-OPEC Institutional Dialogue** was held in 2017 in Vienna.
- **West Asia and Middle East:** India holds good relations across **ideological spectrum** in West Asia such as **Saudi Arabia-Iran, Israel-Palestine**, etc., mainly because of its demand of crude oil and petroleum products.

TOP SOURCES OF CRUDE OIL FOR INDIA

As a % share of India's total crude oil imports
■ FY22 ■ Q1FY23

India importing Russian crude

- Though **prior** to **Ukraine conflict**, India was buying crude oil from Russia, but it was very **minimal**.
- **Low cost:** India started **importing more** Russian oil, ever since it started **trading on discount** as the US and European countries shunned it to punish Russia for its **invasion of Ukraine**.
- **More profit:** **State owned** oil companies and **private refiners** are trying to **maximize** their profits by buying more and more Russian crude oil.

Benefits of India-Russia oil diplomacy

- ✓ **Strong Relations:** India buying more oil from Russia will be making their relations strong, especially when west had put **sanctions on Russia**.
- ✓ **Growing Trade:** India-Russia trade has reached an all-time high. It will eventually help in **cross sector growth** of both countries.
- ✓ **Geostrategic:** **China** and Russia have strong relation; this will help India in **leveraging** its ties with China. A **strong Asia** can effectively bargain with west.
- ✓ **Ties with west:** India is meeting the **energy demands of west** supplying refined petroleum to the west, as European countries can't procure crude oil directly from Russia because of sanctions.
- ✓ **Internationalisation of Rupee:** India and Russia have found out a **novel way** to keep trade going by trading in domestic currency. A **vostro account** has been opened, which allows both the countries to trade in **rupees and ruble** instead of dollars.

CURRENT CONNECT- JULY- 23

- ✓ **No Asian Premium:** West Asian countries use to charge extra monetary amount for exporting crude oil to India in the name of Asian premium. India has found for itself a buyer's market, where Indian buyers can dictate terms.
- ✓ **BRICS, SCO:** It will provide an **impetus** to both the blocks, as India and Russia are both members of the blocks. Both can **coordinate** and **collaborate** productively on international fronts leading the **global order**.

Challenges for India

- **Hampering relations:** It can hamper relation of India with **west and their allies**. India's relation with Russia has created a **discomfiture** in the US and the European Union.
- **Pressure from traditional suppliers:** **Iraq** was largest supplier of crude oil to India, earlier. **Saudi Arabia** had already decreased the prices. Both can pressurize India to reduce its import from Russia.
- **Uncertainty:** Once the Russia –Ukraine conflict is over, **Russia can again increase** the prices of its crude oil. Recently happened **Wagner group rebellion** in Russia had led to the speculations of increased prices of oil.
- **Sanctions:** U.S has applied sanctions to Russia and maintained that no country can trade with Russia. Though India is **currently trading** with Russia, there lies an **unpredictability** in the coming future on whether India will **invite sanctions**.
- **Deft Balancing:** India has deft balance among the various international blocks such as **United Nations, QUAD, I2U2** etc., where India has to face the U.S and European nations on the Russia–Ukraine conflict.
- **Moral and Ethical:** India has taken a **neutral stand** in ongoing **Russia-Ukraine conflict**. In the long run India has to take an ethical stand against the ongoing **violence**.

Way forward

- ✚ **Mediation:** India should try to **minimize** the ongoing **tensions** between Russia and the West by acting as a mediator.
- ✚ **Engagement:** India should be holding talks with Russia for **long term procurement** of cheaper crude oil even when the conflict is over.
- ✚ **Assurance:** Meanwhile India can engage productively with the **European Union and US**, to assure them of their strategic partnership.

PEPPER IT WITH

Oil Reserves in India, Global Strategic Petroleum Reserves (GSPR), Bio-CNG

Geopolitics of Rare Earth Elements and Semiconductor Rivalry

News Excerpt

China has put **curbs** on the **exports of germanium and gallium** metals. Earlier **USA** had asked **Netherlands** to impose similar curbs towards China. **Japan** has also announced restrictions on semiconductor exports to China.

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Pre-Connect

- **Economic Survey 2022-23**, terming the availability of rare earth elements and critical minerals as the possible next "**geopolitical battleground**" just as crude oil has been over the last 50 years, stated that Critical minerals and rare earths may well be **next oil**.
- **REE's contribution** to the global economy is around **\$7 trillion**.

Impact on India

- **Short-term impact:** Disruption in immediate **supply chains**. Increased prices resulting from the export control order would affect the **cost** and **availability** of chips.
- **Long-term consequences:** Depend on several factors, including alternative supply **sources**, domestic semiconductor **production** capabilities, and strategic **partnerships** like the India-U.S. Initiative on Critical and Emerging Technology (iCET).

Opportunities for India

- ✓ **In India**, which is totally **import-dependent** for Germanium and Gallium (by-products in the processing of zinc and alumina), efforts should be made to **focus on waste recovery** from zinc and alumina production.
- ✓ Moving attention towards the available **substitutes** such as **Indium** and **Silicon** could also be considered.
- ✓ There is some good quality of silica feedstock available in India, but that has to be converted to **metallurgical-grade silicon**.

India-USA iCET

- Collaboration on resilient **supply chains**, development of a semiconductor **design, manufacturing**, and **fabrication** ecosystem in India, and promoting development of a **skilled workforce** for the industry.
- A joint **task force** for Semiconductor Mission to make an **assessment** identify **opportunities** and facilitate development of semiconductor ecosystems. The task force would also flag opportunities and challenges for India's role in the global semiconductor value chain.
- **MoU** on Semiconductor Supply Chain and Innovation Partnership to promote commercial opportunities, research, talent, and skill development.
- Proposal to **train 60,000 Indian engineers** and a proposed **investment of \$400 million** to establish a collaborative **engineering centre** in India.

Other initiatives

- ✚ Beijing's "**Made in China 2025**" plan launched in 2019 is geared towards achieving self-sufficiency in semiconductors.
- ✚ Japan, South Korea and Taiwan are part of the USA-led "**Chip 4 Alliance**".

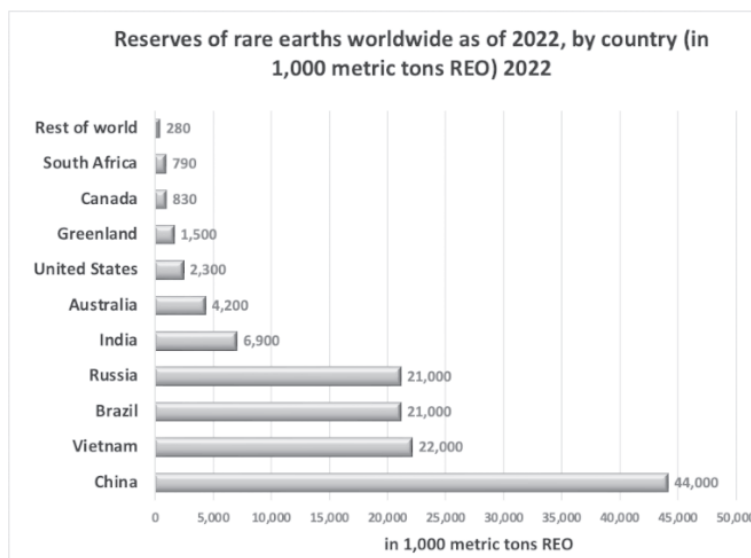
Challenges regarding REE

- ⇒ **Monopoly**: Unlike other raw materials, such as oil, which are mainly concentrated among the OPEC countries, REEs are found in mineral deposits such as Bastnaesite and Monazite, which are relatively more geographically dispersed. Yet, REE supply chains are highly **geographically concentrated**, mainly in **China**. From mine to metal, China dominates the REE supply chain
- ⇒ **RE extraction, refinement** into oxides, and **separation** into metals also require vast amounts of **seed capital** and very high turnover **time** for new mines and accompany severe **environmental hazards** during mining and processing.
- ⇒ Three things are essential for chip making: uninterrupted and uninterruptible **power**; unlimited pure **water supply**; and **chip making infrastructure** — the "fabs" or fabrication plants that are highly specialized units. At the moment, there is **an issue with reference to this in India**.
- ⇒ Chip manufacturing also requires a highly **skilled workforce**.
- ⇒ The absence of a "**chip ecosystem**" is why, despite the political will, no big international chip makers have yet shown interest in India. Other than requirements for chip making itself, a huge set of **ancillary industries** have to take shape, including electronics manufacturers who can create a domestic market for chips.
- ⇒ Absence of **Free trade agreement** and a bilateral investment agreement with **Taiwan**.

Way forward

- > **Economic Survey 2022-23** has prescribed a "carefully crafted **multi-dimensional mineral policy**". It also underlined the need to create "**strategic mineral reserves**" along the lines of strategic petroleum reserves to ensure a continuous supply of minerals so that the country is **self-reliant** and successfully effects the clean energy transition.
- > India can collectively move forward on this path **along with G20 countries**. A **G20 REE Fund** should be established. Alternatively, the G20 countries should work together to create an **international REE bank** from which countries can draw emergency supplies in case of trade blockades.

Figure 2: Reserves of RE Worldwide as of 2022, by Country (in 1,000 Metric Tons REO) 2022



Source: Statista, US Geological Survey (2023)

- > Developing technology for **REE extraction from Monazite ore**: Monazite ores are abundant in India, Australia, and Brazil. Their **HREE** (heavy rare earth element) **content** is also significantly higher than Bastnaesite ores. Yet, the use of **accumulated Thorium** and the **management of radioactive waste** has not allowed for the significant exploitation of Monazite ores for REE production.
- > **Strengthen market mechanisms**: India should emphasize a market-based global trade in critical raw materials.
- > **Develop technological alternatives for replacement and recycling**: Even today, only 1 per cent of REE is being recycled. India along with other countries should collectivize their efforts to promote the recycling of REEs.

PEPPER IT WITH

Dysprosium, erbium,
neodymium, samarium,
gadolinium

Iran's entry in SCO

News Excerpt

Iran joined the Shanghai Cooperation Organisation (SCO) as its ninth member, at the **23rd summit** (virtual) **chaired by India**.

Pre-Connect

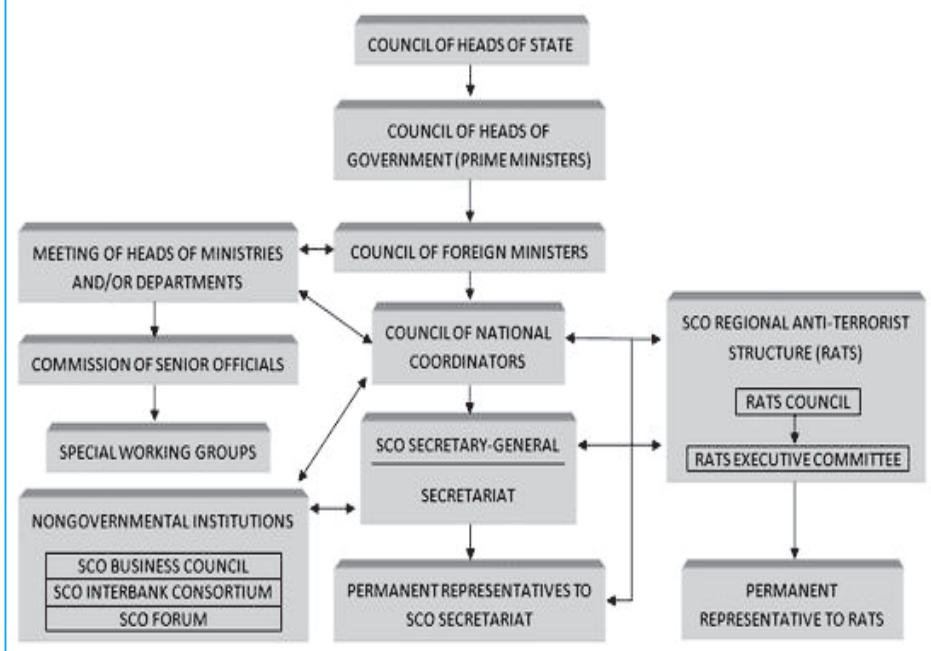
The SCO's focus has traditionally been on **functional issues** like economic development, security and counter-terrorism. **India** has established **five new pillars of cooperation** within the SCO:

1. Start-ups and Innovation;
2. Traditional Medicine;
3. Youth Empowerment;
4. Digital Inclusion; and
5. Shared Buddhist Heritage

Key takeaways from the recent summit

- On **New Delhi Declaration**, India refused to sign off on the paragraph supporting Xi's Belt and Road Initiative (**BRI**).
- India also did not sign off on the **SCO Economic Development Strategy**, which had Beijing's imprint.
- On terrorism, the New Delhi Declaration used language similar to that of the Samarkand Declaration, with a single word, "ultranationalism", replaced with "**chauvinism**".

THE STRUCTURE OF THE SHANGHAI COOPERATION ORGANISATION



Geopolitical Implications of Iran as a member

- > **Energy cooperation**: It will boost the regional **energy security** and provide an **alternative** to dependence on other energy sources.
- > **Economic integration**: Iran has a **diverse economy** such as petrochemicals, automotive, and manufacturing. It allows for increased trade and investment opportunities.
- > **Connectivity/Transport corridors**: Iran's participation can contribute to the development of **trade routes**, such as the International North-South Transport Corridor (**INSTC**).
- > **Security cooperation**: Its inclusion allows for enhanced **intelligence sharing**, joint **counter-terrorism** operations, and collaborative efforts to tackle common security threats.
- > **Cultural and diplomatic exchanges**: Its inclusion fosters greater cultural exchanges and **people-to-people contacts**. Iran has a very rich cultural heritage.

CURRENT CONNECT- JULY- 23

Implications of Iran as a member for India

- ✓ **Energy cooperation:** India can explore **new avenues** for energy collaboration. Increased oil and gas imports from Iran, **diversifying** energy sources and enhancing energy security.
- ✓ **Trade and economic opportunities:** Platform to strengthen economic ties facilitating increased trade, investment, and business collaborations.
- ✓ **Connectivity and transport corridors:** Development of transport corridors, such as the INSTC.
- ✓ **Regional security:** The SCO's collective security framework provides a platform to address security challenges, **terrorism**, **extremism**, and **regional conflicts**.
- ✓ **Geopolitical balance:** It allows for better understanding, dialogue, and cooperation on regional and global issues.

Challenges for India

- India has been **"accused"** of **spreading disharmony** within the SCO, as well as **"troublemaker"** because being the host and only member country to openly **oppose** the Belt and Road Initiative (BRI).
- Talks to set up **SCO Development Bank** are in progress. India has to take a firm stand here. Also there should not be duplication regarding **BRICS's New Development Bank**.
- Despite India joining the SCO and the informal yet "historic" Wuhan and Chennai friendship summits, the **Doklam standoff** and **Galwan border clash** cannot be averted.
- Certain sections who are not happy with India being a member of SCO have **called for removing India** from the SCO, citing Indian PM's official state visit to the US and India living in an **"ecstasy soup"**.
- In fact, some in China are already demanding to **impose appropriate "constraints"** on member states. This will not be good for **strategic autonomy** of India.
- The first Indian presidency summit of the SCO was merely a **"two-hour online affair"** which can set a **bad perception** of India towards SCO among other members.
- While the SCO is not a forum for bilateral **disputes**, certain bilateral **divergences**, **differences**, and disputes have invariably cast a **shadow on the grouping**.

Regional Anti-Terrorist Structure

The SCO Regional Anti-Terrorist Structure established by the member states of the Shanghai Convention to combat terrorism, separatism and extremism. The Executive Committee of the Regional Anti-Terrorist Structure (RATS) of the SCO is the permanent body of the SCO RATS based in Tashkent, the capital of Uzbekistan.

PEPPER IT WITH

BRICS, Quad, ASEAN, Asia Development Bank

Way forward

- ✚ **De-dollarization:** India can utilize SCO as a tool to replace the US dollar in global trade. Iran has proposed the creation of a new currency for transactions with China, Russia, and other SCO members.
- ✚ **De-escalation:** India can use SCO and its members to engage in talks regarding de-escalation in LAC.
- ✚ **Drug Trafficking:** India can effectively engage with Golden crescent countries (Iran, Pakistan, Afghanistan) to tackle the menace of drug trafficking.

China's New Law on Foreign Relations

News Excerpt

China, adopted a new Law on Foreign Relations.

Pre-Connect

- Since **2021**, China has an **Anti-Sanctions law** in place. Scholars argue that the new law is a manifestation of **Xi's foreign policy declarations**.
- New law enables China to respond **sanctions** imposed by **US and its allies**.
- The so-called **"Law on Foreign Relations"** provides a framework for China to take action **against companies and countries** that it considers are penalizing it.

Significance

- Foreign relations law **integrates economic disputes** as matters of national **sovereignty**, rather than issues to be negotiated by two sides - framing that may **narrow** the scope for resolution.

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- It may have a potential bearing on the **signing of agreements** to resolve dispute as it says that treaties and agreements shall **not undermine** the **sovereignty** of the State.
- Aim of the conduct of foreign relations is said to uphold **China's system of socialism** with Chinese characteristics.
- The law also says China will grow relations with its **neighbouring countries**.
- It **warns** the **companies** and **organization** of other nations working in china, with legal implications.
- It gives the government **"right"** to take the required action, to counter or take **restrictive measures** against acts done by companies and organizations.

Challenges

- ✓ **Economic disputes** now have to be solved **carefully** as china has integrated economic disputes with sovereignty.
- ✓ Signing of trade agreements and commercial treaties will have **stricter clauses**.
- ✓ **China's socialism** cannot be made compatible with **west's capitalism** and **India's mixed economy**. There is bound to be fiction.
- ✓ China can grow its relations with **Pakistan**. In the long run it is neither favourable for west and nor for India.
- ✓ National Companies and Organizations now will not show diligence in expanding or trading with china. India is already in **trade deficit** with china.
- ✓ The **Chinese Govt.** will now follow **extreme measures** to put sanctions on companies and organizations.

PEPPER IT WITH

One China Principle, One China Policy, CPEC, Gwadar Port

Way Forward

- If sanctions are to be imposed on chinese companies it should be **well reasoned** and **well thought off**.
- India in **SCO** and **BRICS** can gather **support** and raise the matter on the new law **collectively**.

India-France Ties

News Excerpt

Recently, the Prime Minister visited France, as both countries completed 25 years of their strategic partnership. A number of agreements and a slew of defence deals were signed during the Indian Prime Minister's two-day visit to France.

Pre-Connect

In January 1998, in a world of change and uncertainty, Prime Minister Atal Bihari Vajpayee and President Jacques Chirac elevated the relationship to a Strategic Partnership – one of the first for India with any country.

Prominent outcomes of the visit

- India-France relation is founded on shared values, belief in sovereignty and strategic autonomy, an unwavering commitment to international law and the UN Charter.
- Indian PM and President of France took stock of the transformation and expansion of the relationship, every area of bilateral cooperation and highlighted its evolution into a partnership of regional responsibilities and global importance.

Major Outcomes

Defence: The defence ministry approved the proposed procurement of 26 Naval variant of Rafale jets from France.

- Setting up of an Indian technical office of the Defence Research and Development Organization (DRDO) at the Indian embassy in Paris.
- Expanding cooperation in co-production and co-development of new technologies.

Space:

- Expanding defence manufacturing capabilities and technologies along with strategic cooperation in space.
- Trishna satellite project to boost cooperation in satellite services.

An MoU between our National Institute of Ocean Technology (NIOT) under the Ministry of Earth Sciences and a French sea research institute IFREMER on collaborative research projects in areas such as the Deep Ocean Mission and exchange of scientific and technical expertise is also being treated as a welcome move and will bolster bilateral scientific cooperation. This is also likely to translate into business opportunities in times to come.

Sustainability: Cornerstone of the India-France partnership:

- A joint commitment to eliminate single-use plastic product pollution and a ban on single-use plastic products.

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Digital initiatives

- Covering diverse areas including strengthening of digital public infrastructure, AI, cyber security, 5G/6G telecom and digital skills will strengthen digital cooperation.
- The launch of India's UPI digital payment.

Long-term Initiatives: Visas to Indian students pursuing higher education in France and India's invitation to French universities for opening campuses in India will bolster educational ties and strengthen cultural and people-to-people exchanges.

- The private sector initiatives in facilitating the creation of courses, enhancing capacity, learning and skills and promoting student exchange programmes.

The economic dimension: Sectors like climate action, energy transition, green transport and infrastructure, construction technologies, aeronautics, defence, automotive, life sciences, agriculture, financial services, and information and communication technology present opportunities for further collaboration and deepening engagement between businesses.

- India's conducive and liberal FDI policy regime
- Series of recent interventions in sectors such as infrastructure, digital payments, start-ups, IT and renewable energy provide many investment opportunities to French investors.
- finalization of the Indo-Pacific Triangular Development Cooperation Fund for the creation of disaster resilient infrastructure
- Promoting start-ups in the areas of clean and renewable energy will be critical in securing economic security and a better balance in the region.

Culture

An Indian Cultural Centre, named Vivekananda Cultural Centre is opened in Paris, On the occasion of The International Day of Yoga which have been organized by the Embassy of India in Paris and other cities of France.

Other areas of Cooperation

French Investments in India:

France has emerged as a major source of FDI for India with more than 1,000 French establishments already present in India.

- France is the 11th largest foreign investor in India with a cumulative investment of USD 10.49 billion.
- The highest FDI equity inflows are in the services sector (18.05%), with cement & gypsum products (9.29%) in the second place, followed by air transport (including air freight) (7.59%).
- Most big French groups have their subsidiaries in India.

India-France Main Trade Agreements & Memorandum of Understanding:

Cooperation in the area of the environment

On climate, both countries co-founded **the International Solar Alliance** on the sidelines of COP21.

- France joined the Coalition for Disaster Resilient Infrastructure (CDRI), launched by India. This structure helps implement investment principles in high-quality G20 infrastructures and contributes to climate change adaptation.

- ❖ Agreement for the Avoidance of Double Taxation in Respect of Taxes on Income.
- ❖ MoU on Intellectual Property Rights.
- ❖ Agreement on Social Security.
- ❖ Agreement on Sustainable Urban Development
- ❖ MoU on Civil Aviation
- ❖ MoU in the Field of Renewable Energy

Health cooperation

Solidarity between France and India could be seen at the COVID-19 public health crisis, when India authorized an exemption for the export of many medicines to France. In return, France released assistance of €200 million from the AFD.

Adapting the fight against terrorism to the new threats to better protect our citizens

They will strengthen cooperation on all aspects in order to stay ahead of the evolving threat. This would include operational cooperation, multilateral action, countering online radicalisation and combating financing of terrorism, particularly through the **No Money for Terror (NMFT) initiative** and the **Christchurch Call to Action** to Eliminate Terrorist and Violent Extremism Content Online.

Challenges to India France relation

France is strong enough to have something to offer on the diplomatic, military, space, and nuclear sectors to India, but not strong enough to shape international order, norms, or rules, or to balance China if tensions escalate. For France, India is important, but not the most important partner when it comes to trade and defense cooperation in the context of threats like Russian aggression or terrorism in Africa.

Way-Forward

A shared historical struggle to maintain strategic autonomy in a complex geopolitical landscape has helped both powers develop a degree of trust and a pragmatic partnership.

PEPPER IT WITH

Secularism in France, Strategic Partnership, Wassenaar Arrangement (WA), Australia Group (AG)

Recapturing of Green Cards

News Excerpt

Recently, a U.S. presidential advisory commission recommended to "recapture" unused green cards and this is expected to benefit thousands of Indian Americans waiting for permanent residency.

Pre-Connect

Earlier the legislative proposals introduced in the U.S. Congress to address backlogs, a sub-committee of the President's Advisory Commission on Asian Americans, Native Hawaiian and Pacific Islanders (PACAANHPI) recommended that all unused green cards in the family and employment categories since 1992 be recaptured.

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About green cards

- A U.S green card is a permanent resident card that allows to live and work permanently in the United States which is issued by citizenship and Immigration services. A green card allows a non-U.S. citizen to gain permanent residence in the United States. It is also sometimes referred to as a permanent resident card.
- Many people from outside the United States want a green card because it would grant them permanent resident status, which would allow them to live and work (lawfully) anywhere in the United States and qualify for U.S. citizenship after three or five years.

Different Types of Green Cards

There are many categories of green cards. The most common types are:

- Family-Based Green Card
- Employment-Based Green Card
- Humanitarian Green Cards
- Diversity Lottery Green Card
- Longtime-Resident Green Card











Who is a US Citizen?

People can become US citizens by birth in the United States, through US citizen parents, or through a process known as naturalization. Naturalization is applicable to those who were born in a foreign country and immigrated to the US. They can apply for citizenship after acquiring permanent resident status. If approved by the proper authorities, they become naturalized citizens.

Significance of Green cards

- Provides security benefits and protection.
- Ease in employment.
- Unlimited residency in the US
- Unlimited work permit in the USA
- Unlimited and easy entry and exit without a visa or ESTA
- Eligibility for Medicare benefits and other government assistance after 5 years as a Green Card holder

US Visa vs. Green Card vs. US Citizenship

	 US travel	 Validity	 Medi-care	 Citizen-ship	 Right to vote	 Work permit	 Study
 VISA	free	limited	no	no	no	limited	high fees
	free	life-long	After 5 years	After 3 or 5 years	limited	yes	up to 80% cheaper
	free	life-long	yes		yes	yes	

www.the-american-dream.com

CURRENT CONNECT- JULY- 23

- The right to study at a US university without risk and up to 80 % cheaper than without a Green Card
- The possibility of federal loans for students
- Crisis security: Green Card holders are usually not affected by travel embargoes.
- Uncomplicated obtaining of business and commercial licenses
- Family members (spouse and unmarried children under 21) are automatically eligible for a Green Card as well.
- Application for US citizenship is possible after 3 or 5 years as a Green Card holder.

About recapturing

It is a strategy that will allocate the total number of unused green cards since 1992 to applicants waiting in the backlog without increasing the per-country quota.

The U.S. Congress has "recaptured" certain lost green cards twice in the past, in 2000 and 2005, but over two lakhs remain unused.

However, the US Citizenship and Immigration Services (USCIS) provide an outline of eligibility criteria and other specific requirements for applicants under a host of categories.

Backlog issue

- ✓ Due to 7% quota allotment per country, People from India and China (high volume green card applications) have to wait for years,
- ✓ More than 20 million applications are stuck in backlogs in 2022.
- ✓ As of 2020, approximately 4.2 million people were waiting for family-sponsored green cards with an average wait time of six years.
- ✓ From 2018 to 2019, the share of green cards awarded to Indians fell from 13% to 10% even as their share of petitions increased from 50% to 53%.
- ✓ Skilled Indian workers on H-1B work visas are the most affected as the employment-based backlog for skilled Indians reached 7.19 lakh in September 2021.

Benefits of recapturing

- **Economic growth:** By recapturing these unused green cards, billions of dollars could be added to the economy.
- **Reducing backlogs:** The backlog for families waiting for Green cards could be reduced and may benefit the Indian diaspora.
- **Mitigating limitations:** Unnecessary bureaucratic limitations on legal immigration could be mitigated.
- **Availability:** A new policy ensures that all green cards, per the annual limit, remain available for eligible immigrants even if the agencies cannot process the relevant paperwork in that fiscal year.

PEPPER IT WITH

Eagle act, difference between citizenship and green cards, Indian diaspora among the countries, India's citizenship act, PAC AANHPI

Conclusion

As the skilled citizens from the large population countries (such as India and China) are still limited with the existing laws on the Permanent residents cards, the new policy can bring a paradigm shift in the geo-political relations among the countries.

ENVIRONMENT

Carbon Circular Economy

News Excerpt

The G20 has recently endorsed initiatives like the Circular Carbon Economy (CCE).

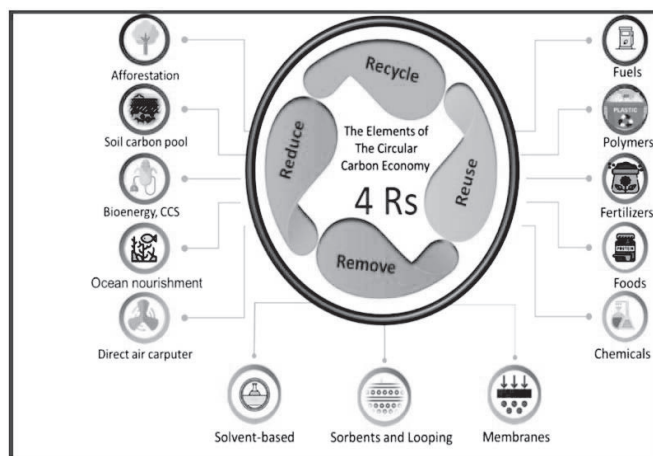
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Pre-Connect

- The circular carbon economy (CCE) is a flexible, technology-neutral and inclusive framework for climate change mitigation, and was first endorsed by the G20 leaders in 2020.
- The COP27 meeting brought to the fore a circular economy's relevance in mitigating carbon emissions for India.
- The concept of CCE can support the design of net-zero emissions. The idea of CCE is based on 4Rs.
- The G20 Protection and Climate Stewardship Working Group (CSWG) conference was held in Saudi Arabia, the most crucial goal of this conference was to leverage the benefits of reducing greenhouse gas emissions by using the CCE.

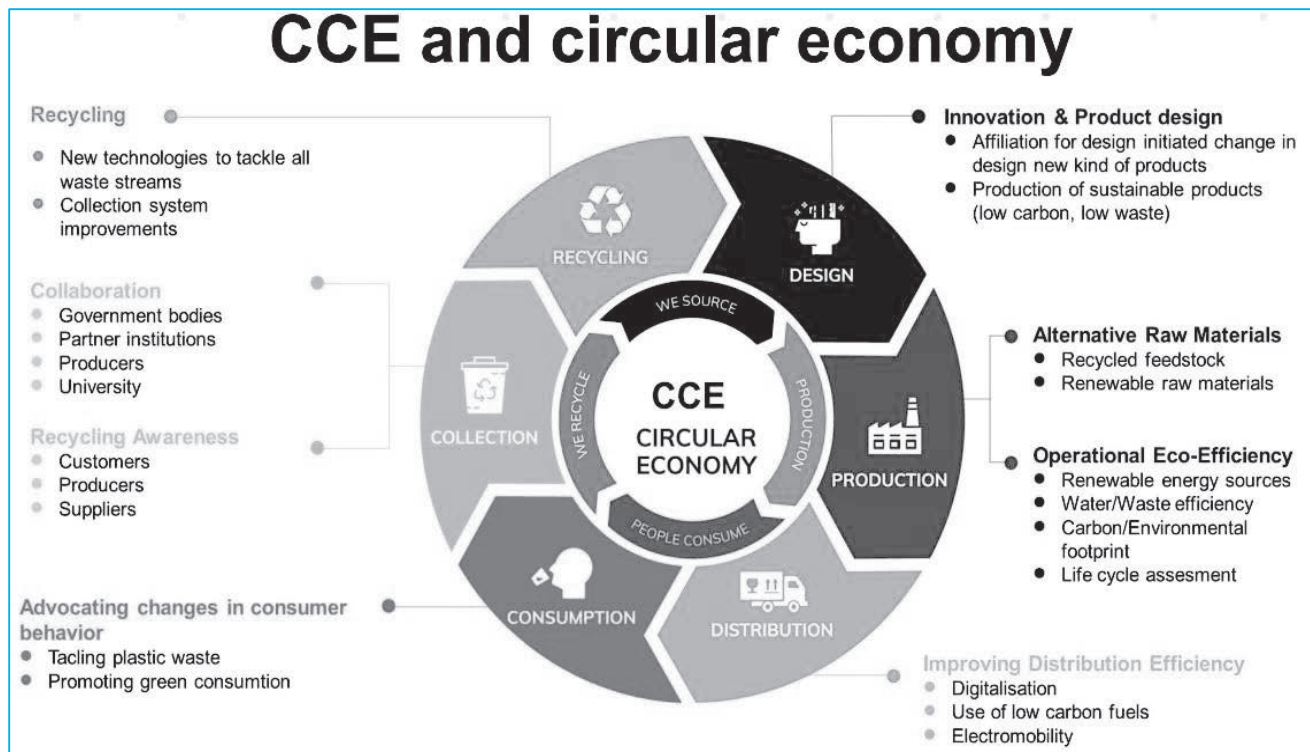
About Carbon Circular Economy

- A circular carbon economy is a framework for managing and reducing carbon emissions through 4Rs.
- CCE deals with the climate problem and plays a massive role in achieving a more stable climate.
- The concept enables to support the design of net-zero emissions pathways adapted to a country's national circumstances, resource endowments, and competitive advantages.
- A circular carbon economy is a sustainable approach to managing carbon dioxide (CO₂) in the atmosphere while involving several methods-



Methods	Example	Key Advantages
Carbon Capture and Storage (CCS) <ul style="list-style-type: none"> CCS involves capturing carbon dioxide (CO₂) emissions from industrial sources or power plants and then securely storing them underground or in other long-term storage solutions, preventing their release into the atmosphere. 	<ul style="list-style-type: none"> A large coal-fired power plant produces lots of CO₂ while generating electricity. With CCS technology, the plant installs special equipment that captures the CO₂ before it is released into the air. The captured CO₂ is then transported through pipelines and stored deep underground in geological formations. By storing the CO₂ in this way, it is kept isolated from the atmosphere, reducing its impact on the environment, climate change and Global Warming. 	<ul style="list-style-type: none"> CCS led to the use of fossil fuels for energy production while reducing their environmental impact. It provides a bridge to a more sustainable energy future. By capturing other pollutants along with CO₂, CCS can improve local air quality, reducing emissions of particulates and other harmful substances.
Carbon Utilization <ul style="list-style-type: none"> CO₂ can be used as a raw material to produce various products. CO₂ can be transformed into synthetic fuels, such as methane or even liquid hydrocarbons, which can 	<ul style="list-style-type: none"> CO₂ emissions from an industrial facility, such as a power plant, are captured and utilized in the production of concrete. Concrete is one of the most widely used construction materials globally, but its production typically involves significant CO₂ emissions due to the chemical 	<ul style="list-style-type: none"> Carbon utilization not only reduces the release of CO₂ into the atmosphere but also creates economic opportunities by turning harmful greenhouse gas into valuable resources.

be used as alternatives to traditional fossil fuels.	reactions involved in creating cement, a key component of concrete.	
Carbon Recycling and Circular Products <ul style="list-style-type: none"> It is the concept that involves finding ways to reuse and transform carbon dioxide (CO₂) emissions into valuable and sustainable products. The goal is to close the carbon loop by recycling carbon, rather than allowing it to be released into the atmosphere as a harmful greenhouse gas 	<ul style="list-style-type: none"> The factory produces plastic products using carbon-recycled materials. These plastics have the same quality and usefulness as traditional plastics but with a significant difference – they're made from captured CO₂, making them more environmentally friendly. When these carbon-recycled plastics reach the end of their useful life, they can be recycled again, creating a circular process. Instead of becoming waste, they can be transformed back into raw materials. 	<ul style="list-style-type: none"> Carbon recycling reduces the amount of CO₂ released into the atmosphere, contributing to climate change mitigation. Circular products, like carbon-recycled plastics, contribute to the development of sustainable alternatives in various industries, supporting a greener economy.



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SDGs and Carbon Circular Economy

The Circular Carbon Economy (CCE) aligns with and contributes significantly to several Sustainable Development Goals (SDGs).

India and Carbon Circular Economy

- ✓ **India has adopted LIFE programme** to promote CCE practices, encourage circular business models, and foster sustainable behaviour especially by developing national action plans for sustainable consumption and production, and promoting cross-sectoral collaboration.
- ✓ The 2022-23 Budget recognised the importance of sustainable growth. In sync with a circular economy, the government formulated the Battery Waste Management Rules.

Hurdles

- India's rapid industrialization and infrastructure development pose challenges to implementing circular carbon strategies.
- A lack of awareness and understanding of circular carbon principles and technologies may hinder widespread adoption.
- India's regulatory landscape may not yet fully support circular carbon initiatives. The absence of clear policies and incentives tailored to circular carbon practices might create uncertainty for potential investors and stakeholders.
- Promoting CCE in agriculture may require addressing complex socio-economic and cultural factors.
- India faces significant challenges in managing and processing its waste streams effectively, hindering the full potential of circular carbon practices.

CCE Index

- CCE Index is a composite indicator comprised of 38 individual variables or indicators.
- CCE Index is a tool for energy and climate policy-makers to check performance and potential for reaching CCEs.
- The index measures and benchmarks large economies and hydrocarbon-producing countries on two temporal dimensions
 - The CCE Performance sub-index measures countries' current performance on the various CCE activities (e.g., energy efficiency, renewable energy, fuel switching, or carbon capture and storage).
 - The Enablers sub-index gauges how countries are positioned to progress toward the CCE based on key enabling factors.
- The 2022 edition of the index has been expanded to include 64 countries.

PEPPER IT WITH

Carbon sequestration, Global Climate Change Alliance, Carbon Credit, Carbon Credit, Global Carbon Removal Partnership

Goal	Link With Circular Carbon Economy (CCE)
Goal 7: Affordable and Clean Energy	The CCE promotes the integration of renewable energy sources and the development of clean technologies, supporting the transition to sustainable and low-carbon energy systems.
Goal 9: Industry, Innovation, and Infrastructure	By encouraging innovation in carbon capture and utilization technologies, the CCE fosters sustainable infrastructure and industrial practices, promoting economic growth while reducing carbon emissions.
Goal 11: Sustainable Cities and Communities	The circular carbon economy can contribute to sustainable urban development by encouraging recycling, waste reduction and implementation of low-carbon solutions for urban infrastructure and transportation.
Goal 12: Responsible Consumption and Production	The CCE aligns closely with circular economy principles, which advocate for responsible production, reduced waste, and increased recycling, thereby supporting sustainable consumption and production patterns.

Conclusion

- The circular carbon economy is about turning a problem (excess CO₂ in the atmosphere) into an opportunity (by finding ways to use or store it) and making sure that carbon is not wasted but rather used in a smart and environmentally friendly manner.
- India has already taken positive steps towards the Circular Carbon Economy. The government has shown commitment to sustainable development and climate action through initiatives like the International Solar Alliance and promoting renewable energy adoption.

International Conference on Green Hydrogen

News Excerpt

India recently organised the International Conference on Green Hydrogen (ICGH-2023). The conference's main focus was on advances and emerging technologies in the entire green hydrogen value chain.

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Pre-Connect

- Depending on the nature of the method of its extraction, hydrogen is categorised into several categories-
 - Grey Hydrogen:** It is produced via coal or lignite gasification (black or brown), or via a process called steam methane reformation (SMR) of natural gas or methane (grey). These tend to be mostly carbon-intensive processes.
 - Blue Hydrogen:** It is produced via natural gas or coal gasification combined with carbon capture storage (CCS) or carbon capture use (CCU) technologies to reduce carbon emissions.
 - Green Hydrogen:** It is produced using electrolysis of water with electricity generated by **renewable energy**.
- Union Cabinet approved the **National Green Hydrogen Mission** with an outlay of ₹ 19,744 crore from FY 2023-24 to FY 2029-30.
- In 2022, the Ministry of Power (MoP) has unveiled the first part of India's much-awaited. Green Hydrogen Policy.

About Green Hydrogen

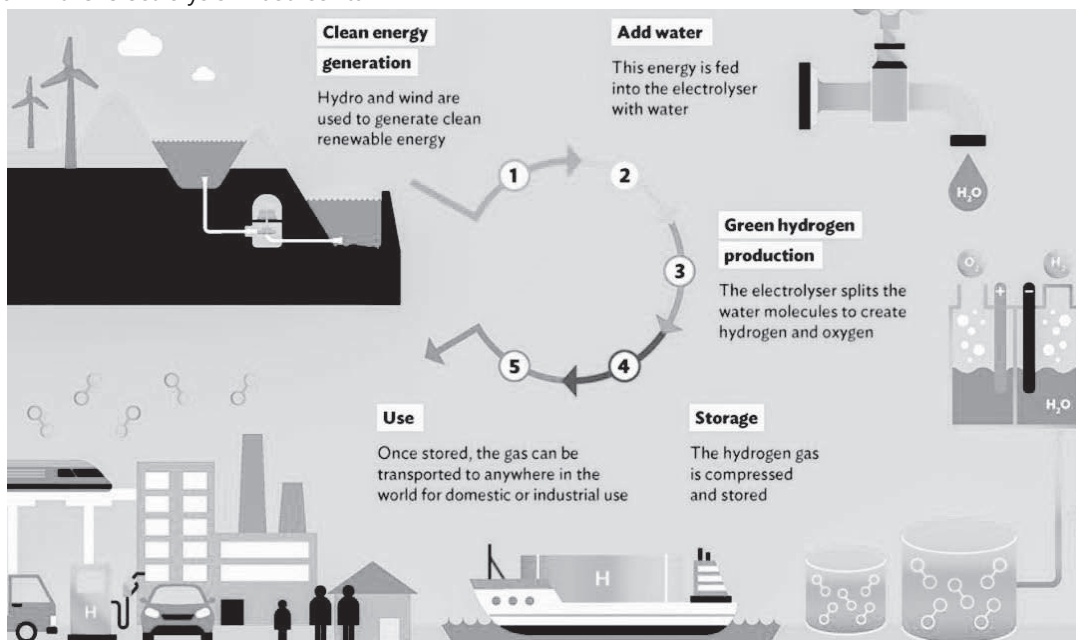
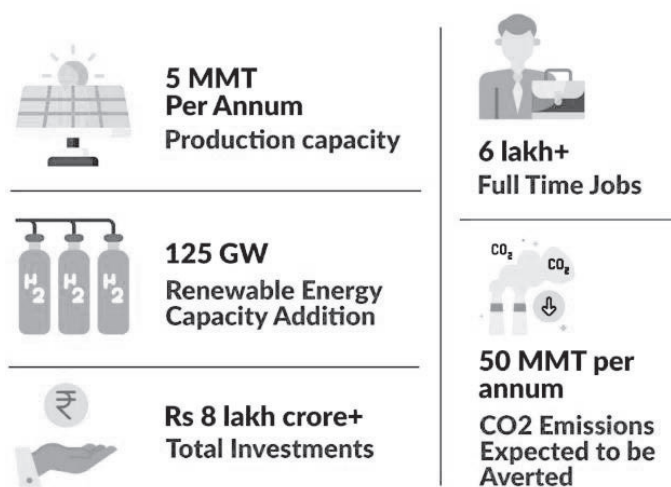
Green hydrogen is produced by electrolysis from renewable sources and involves breaking down water molecules (H_2O) into oxygen (O_2) and hydrogen (H_2).

- The water used in the electrolysis must contain salts and minerals to conduct the electricity.
- Two electrodes are immersed in the water and connected to a power source and a direct current is applied.
- The dissociation of hydrogen and oxygen occurs when the electrodes attract ions with an opposite charge to them.

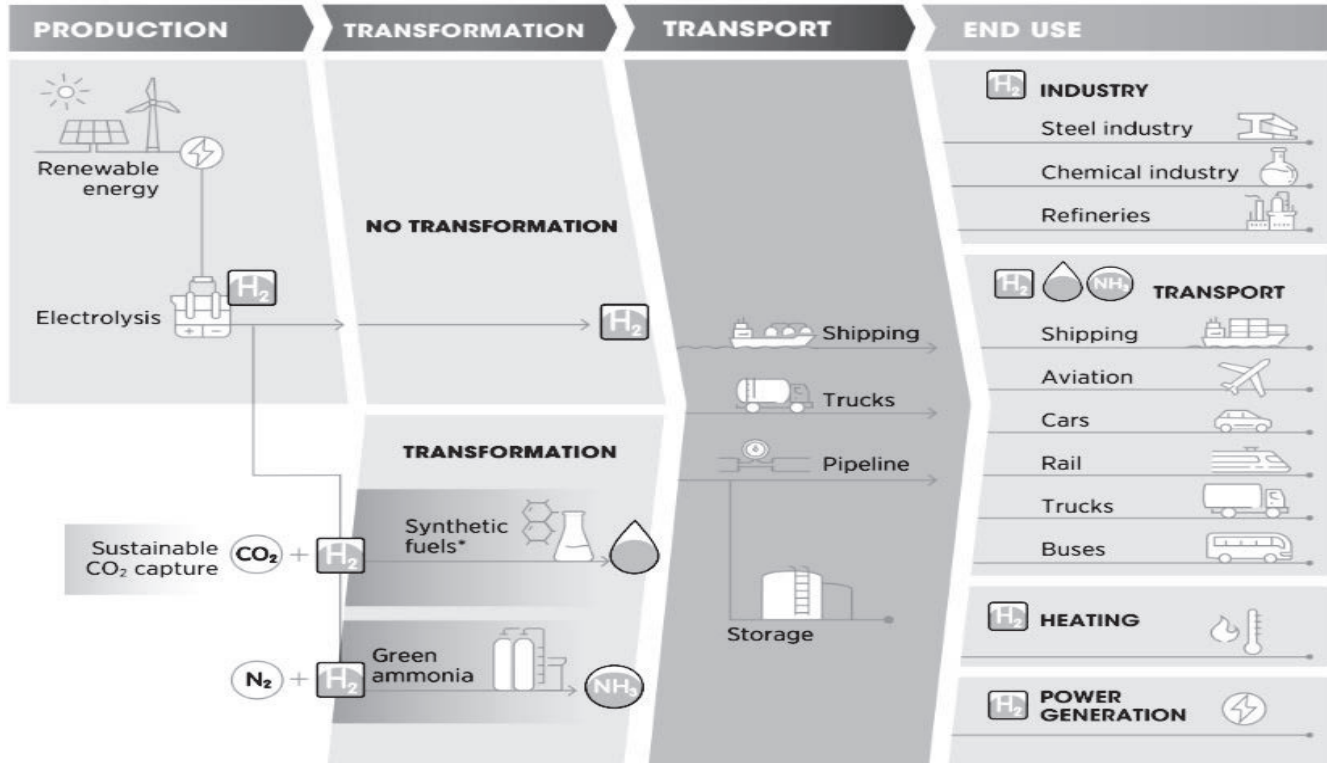
- During the electrolysis, an oxidation-reduction reaction occurs due to the effect of the electricity.

COLOUR	DESCRIPTION: FEEDSTOCK
	Grey: natural gas reforming without CCUS
	Brown: brown coal (lignite) as feedstock
	Blue: natural gas reforming with CCUS
	Green: electrolysis powered through renewable electricity
	Pink: electrolysis powered through nuclear energy
	Turquoise: methane pyrolysis
	Yellow: electrolysis powered through electricity from solar
	Orange: electrolysis powered through electricity from wind

Expected outcomes of the National Green Hydrogen Mission by 2030



Green Hydrogen Value Chain



India's Efforts towards Green Hydrogen

- **To encourage production**, Strategic Interventions for Green Hydrogen Transition (SIGHT) programme has been launched.
- **SIGHT** is a major financial measure under the Mission, with an outlay of ₹17,490 crore, it proposes two distinct financial incentive mechanisms to support the domestic manufacturing of electrolyzers and the production of Green Hydrogen.
- **To enhance adoption**, the government has taken significant steps, such as waiving inter-state transmission charges and providing GH2 plants with open access to the grid.
- The government has announced ₹19,744 crore in the latest budget for several programmes to encourage green hydrogen, including domestic manufacturing of electrolyzers and GH2 production.
- The Solar Energy Corporation of India (SECI) plans to issue a mega tender to aggregate demand for fertilizer plants and refineries.
- Furthermore, Kandla port on the west coast and Tuticorin port on the east coast have been designated as India's first green hydrogen and green ammonia refueling hubs.
- By the end of 2023, hydrogen fuel cell technology will be used to power 8 trains on narrow-gauge heritage routes.

GOING GREEN

- Kerala drafts a road map for green hydrogen manufacturing
- Cochin Airport solar facility to be used for green hydrogen production
- State in talks with IOC, GAIL, NTPC, BPCL, etc
- Hydrogen to be used in running Kochi metro's feeder buses
- PM announced National Hydrogen Mission in his I-Day speech this year

Analytica

Green Hydrogen and Energy Transition

- ✓ The carbon intensity ultimately depends on the carbon neutrality of the source of electricity (i.e., the more renewable energy there is in the electricity fuel mix, the "greener" the hydrogen produced).
- ✓ Green hydrogen is produced through electrolysis which utilizes solar, wind, or hydroelectric power to split water into hydrogen and oxygen. Therefore, less carbon emissions in the atmosphere, which will help to reduce greenhouse gas emissions and decarbonize the energy sector.

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- ✓ Green hydrogen can serve as a large-scale energy storage solution. Hydrogen can be stored and later used as a clean energy source during times of low renewable energy production or high energy demand.
- ✓ The widespread adoption of green hydrogen can help decouple the energy grid from fossil fuels. Hence, dependency on coal-intensive power generation will be minimal.
- ✓ By shifting to green hydrogen, industries can significantly reduce their carbon footprint and contribute to a more sustainable economy.
- ✓ The transition will stimulate economic growth through investments in renewable energy infrastructure, hydrogen production facilities, and related technologies. It can create new job opportunities and drive innovation.

Challenges

Production	Green hydrogen production through electrolysis requires substantial electricity, making cost and grid management crucial and sufficient power production a big challenge. The availability of power may limit the scope of green hydrogen production.
Transformation	Hydrogen produced through electrolysis needs to be purified to meet specific end-use requirements, which can add complexity and cost to the production process.
Transport	Green hydrogen's lower energy density necessitates larger storage and transport infrastructure. It can cause embrittlement in certain metals, demanding careful material selection for pipelines and storage tanks. Establishing a safe and cost-effective hydrogen transportation system is a significant challenge for widespread green hydrogen adoption.
End Use	Existing infrastructure and technologies in various sectors may not be compatible with hydrogen use, requiring adaptation or replacement for efficient integration.
High cost	Energy from renewable sources, which are key to generating green hydrogen through electrolysis, is more expensive to generate, which in turn makes hydrogen more expensive to obtain.
High energy consumption	The production of green hydrogen in particular requires more energy than other fuels.
Safety Concerns	Hydrogen is a highly volatile and flammable element and extensive safety measures are therefore required to prevent leakage and explosions.
Water Intensive	The electrolysis process requires a significant amount of water, and ensuring a sustainable supply of water for hydrogen production can be challenging, particularly in water-stressed regions. The purity and quality of water used in electrolysis affect the efficiency and durability of the electrolyzer, necessitating appropriate treatment and monitoring.

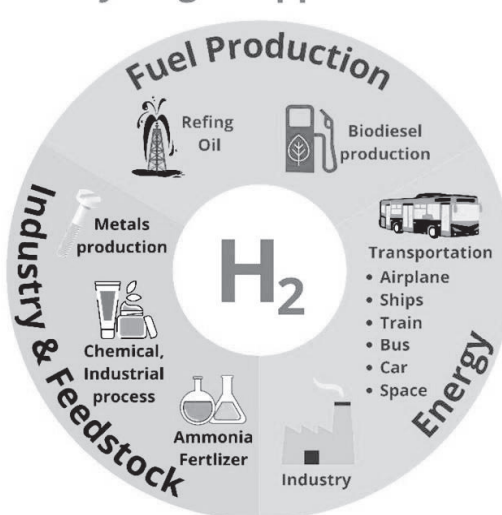
Positive outcomes

- Green Hydrogen will help India to achieve its Intended Nationally Determined Contribution, Net Zero Pledge and reduced carbon emissions.
- Green Hydrogen can enable utilization of domestically abundant renewable energy resources.
- Producing green hydrogen domestically from abundant renewable resources can enhance energy security, reducing dependence on external energy sources.
- Developing the green hydrogen industry can create new job opportunities in research, manufacturing, infrastructure development, and other related sectors, contributing to economic growth.
- Green hydrogen utilization in transportation can significantly contribute to Air Quality Improvements.

Way forward

- ✚ To achieve cost reductions for Green Hydrogen (GH₂), India must ensure a stable and affordable supply of renewable energy.

Hydrogen Applications



- ✦ Developing domestic manufacturing capabilities for Electrolysers and forming strategic international partnerships for critical mineral procurement are essential steps for India to overcome challenges related to Electrolysers.
- ✦ Creating Hydrogen hubs in close proximity to areas of demand can significantly decrease transportation costs for GH2.
- ✦ Implementing sustainable water management practices and utilizing industrial/municipal wastewater or seawater for electrolysis are important for India to maximize water resources.
- ✦ Research and development efforts are required to improve Electrolysers' efficiency, extend their lifespan, and reduce water and power consumption.
- ✦ Providing tax and duty waivers to GH2 projects and renewable energy plants can incentivize exports and boost India's position in the global market.

PEPPER IT WITH

Turquoise hydrogen, Energy transition, INDC, Net Zero Emissions

High Seas Treaty

News Excerpt

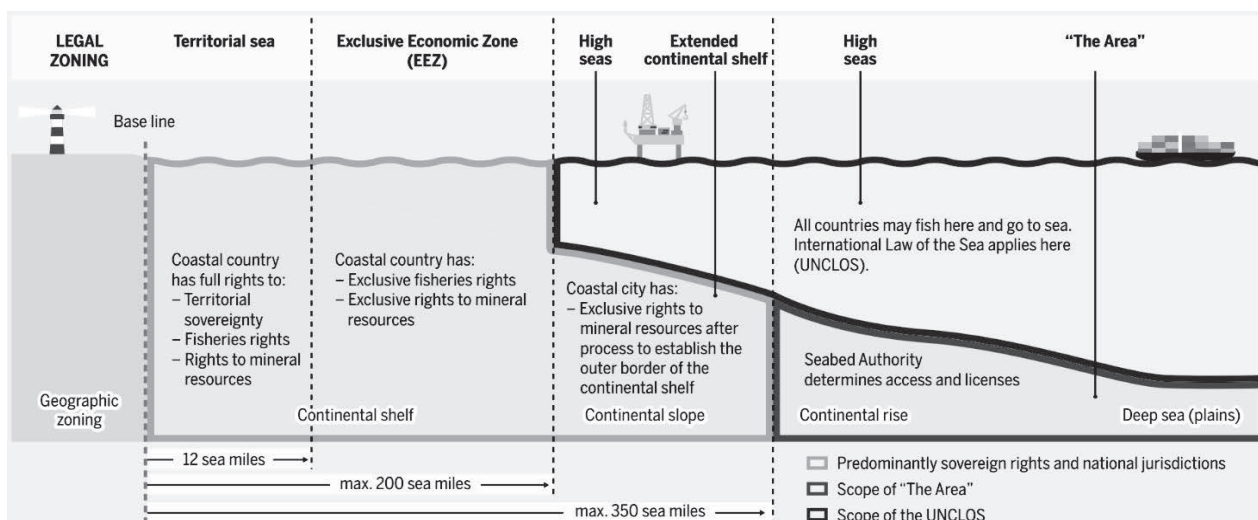
The UN adopted Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) or the High Seas Treaty.

Pre-Connect

- High Sea became the third agreement to be approved under United Nations Convention on the Law of the Sea (UNCLOS), after the 1994 and 1995 treaties.
- UNCLOS is a comprehensive treaty that sets out the legal framework for the use of the world's oceans, including the high seas and the seabed beyond national jurisdiction.
- In 1994, International Seabed Authority (ISA) was established as an autonomous international organization under the UNCLOS.
- The Fish Stocks Agreement, was adopted in 1995. It was intended to promote conservation and sustainable management of straddling fish stocks and highly migratory fish stocks in the world's oceans.

International Seabed Authority (ISA)

- ❖ ISA is the organization through which States Parties to UNCLOS organize and control all mineral-resources-related activities in the Area for the benefit of humankind as a whole.
- ❖ In so doing, ISA has the mandate to ensure the effective protection of the marine environment from harmful effects that may arise from deep-seabed-related activities.
- ❖ In accordance with UNCLOS, Article 156(2), all States Parties to UNCLOS are ipso facto members of ISA.
- ❖ As of May 2023, ISA has 169 Members, including 168 Member States and the European Union.



About High Sea Treaty

- The treaty aims to address critical issues such as the increasing sea surface temperatures, overexploitation of marine biodiversity, overfishing, coastal pollution, and unsustainable practices in waters beyond national jurisdiction.
- The High Seas Treaty establishes marine protected areas in these high seas which will help achieve the global goal of protecting 30% of the world's oceans - made at the UN biodiversity conference last year.
- The High Seas Treaty has four main objectives:
 - Demarcation of marine protected areas (MPAs), as they are like protected areas.
 - Sustainable use of marine genetic resources and equitable sharing of benefits arising from them.
 - Initiation of the practice of environmental impact assessments for all major activities in the oceans.
 - Capacity building and technology transfer.

- ❖ Only about 1.44 per cent of high seas are currently protected, according to the International Union for Conservation of Nature (IUCN).
- ❖ According to the Deep Ocean Stewardship Initiative (DOSI), the high seas comprise 64 per cent of the ocean surface, and about 43 per cent of the Earth.
- ❖ These areas are home to about 2.2 million marine species and up to a trillion different kinds of microorganisms.

MPAs

- High Sea treaty is also intended to regulate activities in **Marine Protected Areas (MPAs)** from human footprint and climate change.
- MPAs are often referred to as the national parks or wildlife reserves of the seas.

Marine Genetic Resources

- Oceans host very diverse life forms, many of which can be useful for human beings in areas like drug development. The treaty seeks to ensure that any benefits arising out of such efforts, including monetary gains, are free from strong intellectual property rights controls, and are equitably shared amongst all.
- The knowledge generated from such expeditions are also supposed to remain openly accessible to all.

Environment Impact Assessments

- The high seas are open for use by all countries. Under the provisions of the new treaty, commercial or other activities that can have significant impact on the marine ecosystem, or can cause large-scale pollution in the oceans, would require an environmental impact assessment to be done, and the results of this exercise have to be shared with the international community.

Capacity Building And Technology Transfer

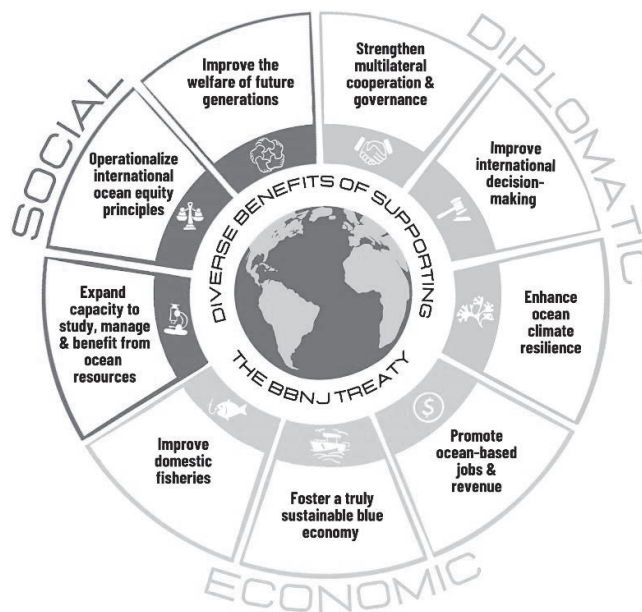
- The treaty lays a lot of emphasis on this, mainly because a large number of countries, especially small island states and landlocked nations, do not have the resources or the expertise to meaningfully participate in the conservation efforts, or to take benefits from the useful exploitation of marine resources.

Need for the treaty

- ✓ **For Biodiversity Conservation:** The high seas are abode of marine species, including many unique and endangered ones.
- ✓ **For effective Climate Regulation:** Oceans play a crucial role in regulating the Earth's climate. Protecting the high seas is essential for maintaining healthy ocean ecosystems that can absorb and sequester carbon dioxide, helping mitigate the impacts of climate change.
- ✓ **Sustainable Fisheries:** The high seas support fisheries that contribute significantly to global food security. Effective protection ensures that fish stocks are managed sustainably, preventing overfishing and ensuring the availability of seafood resources for future generations.

Positive Outcome

- **Environmental Conservation:** With the treaty's provisions on pollution prevention and habitat preservation, the high seas can remain cleaner and healthier, reducing the impact of marine pollution on ecosystems and marine life.
- **Climate Change Mitigation:** This treaty can contribute to climate change mitigation by protecting marine ecosystems that play a crucial role in absorbing and storing carbon dioxide from the atmosphere, thus helping to combat global warming.
- **Conflict Prevention:** Clarity on rights and responsibilities through the treaty can prevent conflicts and disputes between countries, as well as among various stakeholders involved in high seas activities.
- **Long-Term Economic Benefits:** By ensuring the sustainable use of marine resources, the treaty can create long-term economic benefits, supporting industries like- fishing, tourism, and biotechnology etc.



Issues associated with High Seas Treaty

- ✚ The idea of "fair and equitable" sharing of any discoveries made in the deep sea among nations is an unanswered puzzle, least developed countries due to their limited ability may not get adequate benefits.
- ✚ Moreover, any international collaboration in scientific research and data sharing on the high seas can be impeded by challenges related to data accessibility and intellectual property rights.
- ✚ The enforcement of regulations and rules in the high seas can be challenging due to the absence of a centralized authority.
- ✚ Multiple regional and global agreements might have jurisdiction over certain aspects of high-seas governance, leading to confusion and potential conflicts, especially in the south china sea.
- ✚ Implementing measures to protect and manage the high seas effectively requires financial resources and international cooperation. The treaty has no clarity on this aspect.
- ✚ Issues related to the equitable sharing of benefits derived from marine resources in the high seas can be complex and require careful consideration in any treaty negotiations.

PEPPER IT WITH

Blue Flag Certification, Maritime
India Vision 2030, Blue Economy

Conclusion

Despite the adoption of the new treaty, many issues remain unaddressed, including the mechanisms for policing the protected areas, the fate of the projects that are assessed to be heavily polluting, and the resolution of disputes. The process of ratification is the next hurdle.

Global Tropical Primary Forest Cover

News Excerpt

As per the World Resources Institute's (WRI) Global Forest Watch, Tropical areas lost 4.1 million hectares of forest cover in 2022.

Pre-Connect

- Tropical rainforests are mainly located between the latitudes of Tropic of Cancer and Tropic of Capricorn.
- Tropical rainforests are found in Central and South America, western and central Africa, western India, Southeast Asia, the island of New Guinea, and Australia.
- Tropical rainforests in India are situated across various regions, including the Andaman and Nicobar Islands, the Western Ghats alongside the Arabian Sea, the coastal areas of peninsular India, and the larger Assam region in the north-eastern part of the country.

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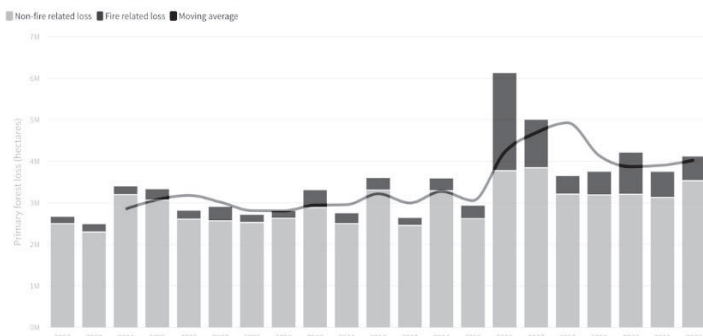
CURRENT CONNECT- JULY- 23

- **The Tropical Forest Alliance** is a public-private partnership that aims to reduce tropical deforestation linked to the production of commodities such as palm oil, soy, beef, and pulp and paper.
- **Amazon Watch** is a nonprofit organization founded in 1996, and based in Oakland, California, it works to protect the rainforest and advance the rights of indigenous peoples in the Amazon Basin

About Primary & Secondary Forest

- **Primary forests** are mature, natural forests that have remained undisturbed in recent history.
- Primary forests often store more carbon than other forests and are rich sources of biodiversity.
- Primary forest loss is almost irreversible in nature: even if the green cover regrows, a secondary forest is unlikely to match the extent of biodiversity and carbon sequestering capabilities of a primary forest.
- **Secondary forest**, also known as regrowth or second-growth forest, refers to forests that have regrown or reestablished after significant disturbance or human intervention, such as deforestation, logging, or agricultural activities.

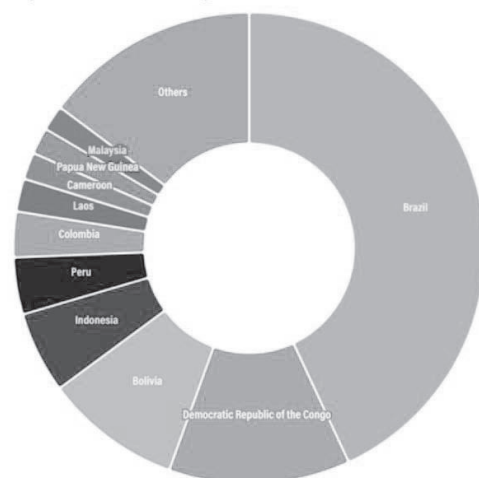
Tropical primary forest loss, 2002-2022



Key Findings of Global Forest Watch

- ✓ WRI measures progress on two goals –
 - Ending deforestation by 2030
 - Restoring 350 million hectares (Mha) of lost and degraded forests by 2030
- ✓ The global deforestation rate needs to decrease by at least 10% annually to achieve the 2030 target.
- ✓ Although the global deforestation rate decreased by 3.1% compared to the 2018-2020 baseline, it still exceeded the required level by over one million hectares, putting the world off track to meet the 2030 goal.
- ✓ To restore 350 million hectares of forests worldwide by 2030, an increase in tree cover by 22 million hectares per year is necessary between 2021 and 2030.
- ✓ Over the past 20 years, there has been a net loss of 100 million hectares in overall tree cover despite some progress.
- ✓ Brazil and the Democratic Republic of Congo have the most tropical forest cover and both experienced losses in 2022.
- ✓ Ghana and Bolivia also witnessed rapid losses in their primary forest cover. However, Indonesia and Malaysia successfully kept their primary forest cover losses at record-low levels in 2022.

primary forest loss by area in 2022



India and Global Forest Watch

- According to the Global Forest Watch, India experienced a loss of 43.9 thousand hectares of humid primary forest between 2021 and 2022, accounting for 17% of the country's total tree cover loss during that period.
- The total tree cover loss in India between 2021 and 2022 amounted to 255 thousand hectares.
- Over the period from 2002 to 2022, India lost 393 thousand hectares of humid primary forest, contributing to 18% of the total tree cover loss during that time.

Key policies that govern India's forests

Compensatory Afforestation Fund Act 2016	Forest Conservation Act 1980	National Forest Policy 1988	Indian Forest Act 1927
Wildlife (Protection) Act 1972	Forest Rights Act 2006		

- The area of humid primary forest in India decreased by 3.9% during this period. Between 2001 and 2022, India's tree cover diminished by 2.19 million hectares, representing a 5.6% decline since 2000. This loss resulted in 1.11 gigatons of CO₂ emissions.

Threats faced by tropical Primary Forest

- ✚ **Deforestation:** The most significant threat to tropical primary forests is deforestation, primarily driven by anthropogenic activities. Large areas of these forests are cleared each year, leading to habitat loss and fragmentation for countless plant and animal species.
- ✚ **Illegal logging:** Illegal logging is a pervasive issue in many tropical regions. It involves the extraction of timber without proper authorization, leading to the destruction of valuable trees and disrupting forest ecosystems. This activity is often associated with organized crime and corruption.
- ✚ **Climate change:** Tropical primary forests are affected by climate change, with rising temperatures, altered rainfall patterns, and increased frequency of extreme weather events. These changes can stress forest ecosystems, making them more vulnerable to other threats like diseases and pests.
- ✚ **Infrastructure development:** The expansion of infrastructure, such as roads, dams, and pipelines, can facilitate further deforestation and fragmentation. Infrastructure projects open up previously inaccessible areas to human activities, leading to increased pressure on forest resources.
- ✚ **Agricultural expansion:** The conversion of primary forest into agricultural land, especially for large-scale plantations of crops like oil palm, soy, and rubber, has a significant impact on forest ecosystems. It results in habitat loss, biodiversity decline, and soil degradation.
- ✚ **Mining:** Mining activities, including those for minerals and fossil fuels, can cause extensive damage to primary forests through deforestation, soil erosion, water pollution, and disturbance to wildlife.

Way Forward

- ⇒ Governments and conservation organizations should work together to designate and expand protected area.
- ⇒ Encourage sustainable agriculture and responsible logging practices that do not harm primary forests. This includes certification programs for sustainable products like timber and palm oil.
- ⇒ Strengthen law enforcement efforts to combat illegal logging, poaching, and other activities that contribute to forest degradation.
- ⇒ Tropical primary forests are often found across multiple countries. A new International cooperation is vital to address transboundary issues, share knowledge, and coordinate conservation efforts.

PEPPER IT WITH

New York Declaration on Forests,
United Nations Forum on Forests,
Global Forest Coalition

Genetically modified insects

News Excerpt

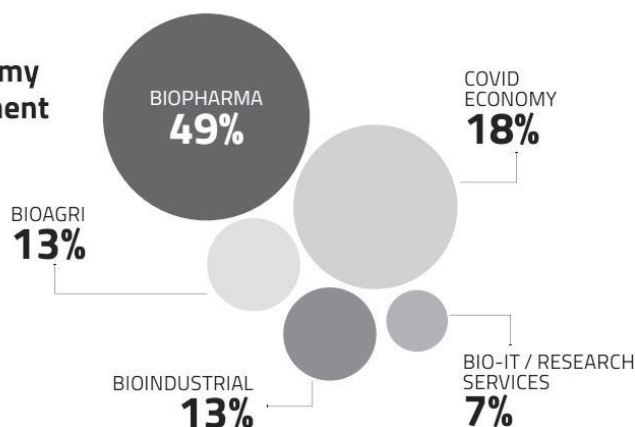
Recently, the Department of Biotechnology issued the 'Guidelines for Genetically Engineered Insects'.

Pre-Connect

- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is a global treaty that seeks to guarantee the secure management, movement, and utilization of living-modified organisms (LMOs) to safeguard biodiversity.
- First Global Conference on GMO Analysis was organized by the European Commission.
- Genetic Engineering Appraisal Committee (GEAC) functions as a statutory body under the Environment Protection Act 1986 of the Ministry of Environment & Forests (MoEF).

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BioEconomy Key Segment (% Share)



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DELHI VN: 9717380832 & DELHI ORN: 9811293743 | JAIPUR: 8290800441 | PATNA: 7463950774 | RANCHI: 9939982007 | BHOPAL: 7509975361 |
INDORE: 7314977441 | BENGALURU: 7619166663 | HYDERABAD: 79960 66663 | IMPHAL: 9650245599 | SRINAGAR: 98712 35599 | MUMBAI: 9871265599 |

CURRENT CONNECT- JULY- 23

Bioeconomy in India

- India's Bio-Economy contributes 2.6% to the GDP. The Indian Bio-Economy for 2021 (January-December 2021) is estimated at \$ 80.12 billion. The Bio-Economy registered 14% growth over 2020.
- The Bio-Economy in 2020 was valued at \$ 70.2 billion.
- Foreign Direct Investment (FDI) in biotech is estimated to have touched \$830 million in 2021, up from \$780 million in 2020.
- The cumulative number of start-ups in 2021 was estimated at 5365. About 1128 companies have registered in 2021. This is the highest number since the year 2015.

Issues pertaining to the latest guidelines

Latest Guideline	Issue
The guidelines note that Genetically Engineered (GE) insects are becoming globally available and are intended to help Indian researchers navigate regulatory requirements.	<ul style="list-style-type: none"> The guidelines don't specify the purposes for which GE insects may be approved in India or how the DBT, as a promoter of biotechnology, envisions their use.
The guidelines apply only to research and are not to confined trials or deployment, disease alleviation.	<ul style="list-style-type: none"> Government authorities will also have to closely follow the deployment of these insects. Once deployed, GE insects can't be recalled, and unlike genetically modified foods, they are not amenable to individual consumer choice.
The guidelines offer standard operating procedures for GE mosquitoes, crop pests, and beneficial insects.	<ul style="list-style-type: none"> What is 'beneficial', in the context of GE insects, is not clear. The lack of clarity about the insects and the modifications to them that are deemed 'beneficial' will impede funders and scientists from investing in this research. Funding for biotechnology in India has been stagnating for a while. Despite a slight uptick during COVID-19, when DBT led the vaccine and diagnostics efforts, funding hasn't returned to the pre-pandemic level.

Potential benefits and risks regarding Genetically Engineered Organisms (GEO)

Dimension	Potential Benefits	Associated Risks
Food Production and Security	<ul style="list-style-type: none"> Increased Crop Yield: GEOs can be engineered to resist pests, diseases, and environmental stresses, leading to higher crop yields and improved food production. Enhanced Nutritional Content: GEOs can be designed to have improved nutritional profiles, such as increased levels of essential vitamins and minerals. Extended Shelf Life: Certain GEOs can be engineered to have longer shelf lives, reducing food wastage and improving food security. Adaptation to Climate Change: GEOs can help address the challenges posed by climate change by producing crops better suited to changing environmental conditions. 	<ul style="list-style-type: none"> There is a risk of unintended consequences, where genetic modifications may lead to unforeseen health or environmental issues. There is a concern that GEOs may crossbreed with wild or traditional crops, potentially leading to the spread of modified genes in natural ecosystems. The widespread adoption of a few genetically uniform crops could increase the vulnerability of agriculture to disease outbreaks and pests.
Environment	<ul style="list-style-type: none"> Reduced Pesticide Use: GEOs with built-in pest resistance can reduce the need for chemical pesticides, which may benefit the environment and human health. Conservation of Biodiversity: GEOs can be engineered to conserve endangered species or restore degraded habitats. 	<ul style="list-style-type: none"> The introduction of GEOs may disrupt natural ecosystems by affecting non-target organisms and altering food chains. Pests and weeds may evolve resistance to the modifications, leading to the

		<p>emergence of 'superweeds' and resistant pests.</p> <ul style="list-style-type: none"> The adoption of GMOs may lead to a reduction in traditional crop varieties, thereby diminishing agricultural biodiversity.
Biodiversity	<ul style="list-style-type: none"> Preservation of Endangered Species: Genetic engineering can potentially help conserve endangered species by restoring their populations or addressing genetic issues. Restoration of Ecosystems: GEOs can be utilized to restore degraded habitats and contribute to ecosystem recovery. 	<ul style="list-style-type: none"> Genetic modification can lead to hybridization between GMOs and wild species, potentially diluting the gene pool of native populations. Genetically modified organisms may possess traits that enable them to outcompete native species, leading to invasive behavior.
Disease Alleviation	<ul style="list-style-type: none"> Medical Advancements: GEOs have the potential to revolutionize medicine by producing pharmaceuticals and vaccines more efficiently and affordably. Disease Resistance: Genetic engineering can enhance the resistance of plants and animals to infectious diseases. 	<ul style="list-style-type: none"> The use of GEOs in medical research raises ethical questions about informed consent, privacy, and potential unintended consequences. The long-term effects of consuming GMOs on human health are still not fully understood and require thorough investigation.
Employment	<ul style="list-style-type: none"> Biotechnology Industry: The development and commercialization of GEOs can lead to the growth of the biotechnology sector, creating job opportunities. 	<ul style="list-style-type: none"> GMOs may lead to the displacement of small-scale farmers, as larger agricultural corporations with more resources can dominate the market.

Way Forward

- ✓ The reduced funding is detrimental to India's national interests, considering the Department of Biotechnology is essential to any pandemic preparedness efforts. Therefore, the government should allocate more resources.
- ✓ The robust scientific research to understand the potential benefits and risks associated with GE organisms is the need of the hour.
- ✓ There is a need to engage with the public in open and inclusive discussions about GE organisms to address concerns, provide accurate information, and gain insights from diverse perspectives.

PEPPER IT WITH

Gene Editing, Base Editing, Gene Silencing, Aarhus Convention's GMO Amendment

Deep Sea Mining

News Excerpt

From 2021 International Seabed Authority (ISA) worked on commercial mining of the sea floor. This month, ISA commenced global talks on deep-sea mining.

Pre-Connect

- According to the International Union for Conservation of Nature (IUCN), the extraction of mineral resources from the ocean below 200 meters is called deep-sea mining.
- International Sea Bed Authority (ISA) is currently accepting mining permits in deep seas. Almost of the 26 permits have been issued by ISA under UNCLOS.
- The UN High Sea treaty has been adopted by the UN members, this treaty governs mining and exploration in international water (water beyond national Jurisdiction).
- Nickel, copper, cobalt, manganese, zinc, gold and other rare-earth metals and minerals, much of which are used in electronics. They are found on the seafloor, embedded in three types of mineral forms-

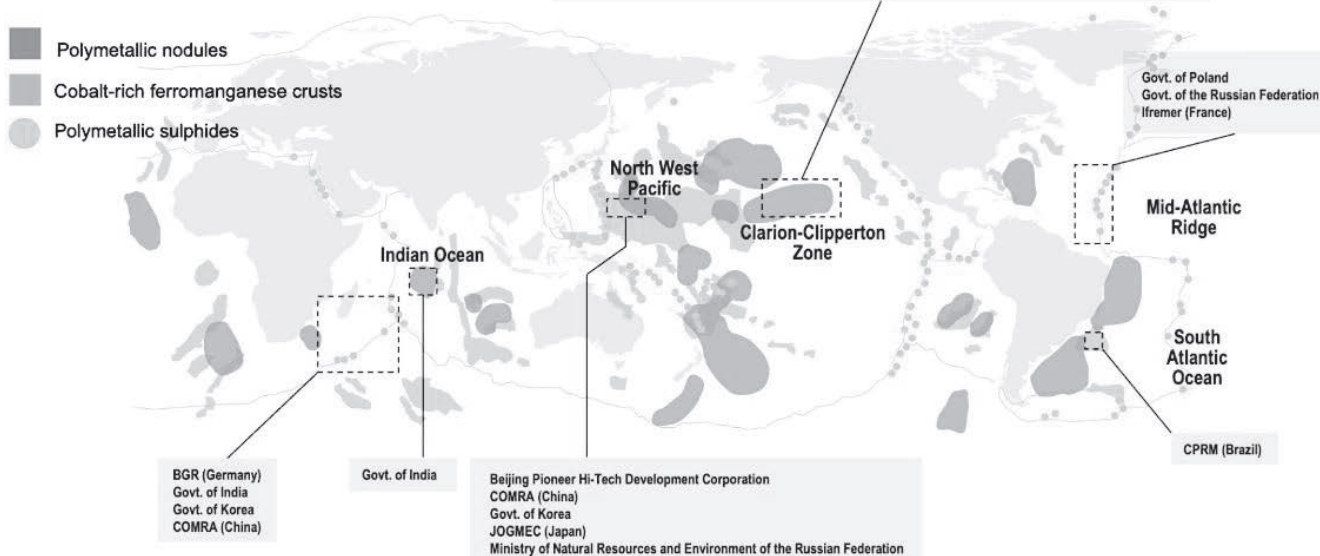
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- Cobalt-rich crust, polymetallic sulphides and polymetallic nodules.

About Deep Sea Mining

- Deep-sea mining aims to retrieve valuable mineral deposits found on the ocean floor.
- According to Deep Sea Conservation Coalition (DSSC), an initiative formed in 2004 to safeguard deep-sea ecosystems, the seabed can be mined in three ways:

Exploration for minerals in the Area



- **Extracting metals from polymetallic nodules on abyssal plains:** Abyssal plains are underwater plains on the sea floor. Polymetallic nodules contain a variety of metals including manganese, iron, copper, nickel, cobalt, lead and zinc, and small but significant concentrations of molybdenum, lithium, titanium, and niobium, among others.
- **Stripping cobalt crusts from seamounts:** Scientists believe that underwater mountains formed through volcanic activity are potentially rich in cobalt. Cobalt crusts accumulate at depths of between 400 and 7,000 metres. Seamounts are also rich sources of iron, manganese, nickel, copper and various rare metals, including rare earth elements.
- **Extracting polymetallic sulphides from hydrothermal vents:** These are also called seafloor massive sulphides and are rich in copper, iron, zinc, silver and gold. Active hydrothermal vents are also homes to unique ecosystems, containing chemosynthetic bacteria, giant tube worms, crustaceans, molluscs and other species— many believed to be endemic to the vents.

Positive outcomes

- ✓ **Deep sea mining** could help with meeting the growing demand for rare-earth metals used in batteries both for electric cars and for storing renewable energy, aiding the shift to a low-carbon economy.
- ✓ **Decarbonized Industries:** Deep sea mining has the potential to contribute to the decarbonization of industries by providing access to critical minerals and metals needed for clean technologies.
 - Increased availability of rare earth minerals can accelerate the transition away from fossil fuel-based transportation and energy industries, reducing greenhouse gas emissions.
- ✓ **Climate Change Mitigation:** The positive outcomes of deep sea mining can contribute to climate change mitigation efforts. By supporting the development of renewable energy technologies and reducing the demand for fossil fuels, deep-sea mining can help curb greenhouse gas emissions and slow down global warming.
- ✓ **Resource Efficiency and Circular Economy:** Deep sea mining can promote resource efficiency by recovering valuable minerals and metals from the seabed, reducing the need for virgin materials extraction on land.

- Additionally, proper waste management and recycling of deep sea mining byproducts can contribute to the development of a circular economy, minimizing waste and optimizing resource utilization.
- ✓ The development of deep-sea mining projects can stimulate economic growth and create job opportunities in the regions where mining activities take place.

Implications

- The most direct impacts at mining sites are the destruction of natural landforms and the wildlife they host, compaction of the sea floor, and creation of sediment plumes that disrupt aquatic life.
- Deep-sea mining may alter the geochemical underpinnings of ocean life, cause the loss of important genetic resources, and disrupt the connectivity between deep oceans and surrounding oceans, potentially hindering the flow of nutrients.
- Deep sea mining activities may impact indigenous communities with cultural and spiritual connections to marine environments, potentially violating their rights and heritage.
- Deep-sea mining can lead to diplomatic tensions among countries, especially if there are disputes over mining rights in shared international waters or the use of mineral-rich seabed resources.
- The exploitation of marine resources may raise ethical dilemmas, particularly concerning the balance between economic development and cultural preservation.
- The race for deep sea mining may intensify competition among nations for access to strategic minerals, potentially leading to geopolitical tensions and resource-driven conflicts.

- ❖ In 2020, a two-hour operation funded by the Japanese government excavated a roughly 120-metre-long strip of cobalt-rich crust on a seamount in the northwest Pacific Ocean.
- ❖ Scientists found that, in the year after the excavation, the density of active swimming animals, such as fish and shrimp, dropped by 43% in areas directly affected by sediment kicked up by mining, and by 56% in adjacent areas.

Conclusion

Although, Deep sea mining leads to Economic growth and tech advancement opportunities, but risks to social, environmental and cultural aspects. There is a need for robust regulations, international cooperation, and responsible practices for community needs, ecosystem preservation, and long-term well-being.

PEPPER IT WITH

Continental Shelf, Abyssal Plain, Sea Mount, Guyot, Dykes, Oceanic Ridges

Summer Monsoon in India

News Excerpt

The onset of the summer monsoon was delayed by unforeseen interactions with cyclones.

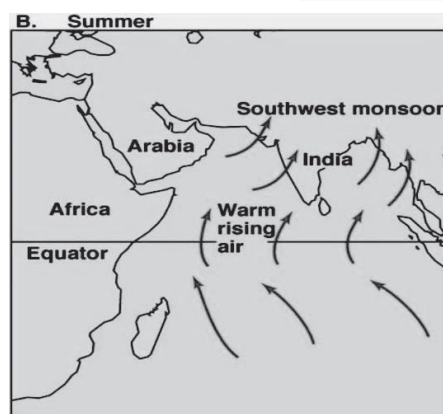
Pre-Connect

- The monsoon season in India is a result of a shift in the direction of tropical winds between the winter and summer seasons.
- This shift is a result of the shifting of global pressure belts.
- In India, Monsoon winds became Southwest in their direction, and Indian remain under the influence of South West (SW) winds, which bear rain in India.
- Due to intense insolation and northward drift of the sun, extremely low-pressure conditions are developed in India. This low pressure can be referred to as ITCZ.
- ITCZ became a convergence zone for winds and monsoon winds from the Arabian Sea heading towards the northern plains.
- SW monsoon winds carry moisture with them and resulted in orographic rain in India.

Reasons for Delay in Monsoon

- **Cyclone:** In India, Cyclone formation during summer lead to reduce cloud formation and disturb the pressure gradient. As a result, winds lose their normal direction and this may result in delay in Monsoon.

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- **El Nino:** The factor affecting the Indian Monsoon is the El Nino phenomenon. During El Niño years, sea surface temperatures in the central and eastern Pacific Ocean become unusually warm, leading to altered atmospheric circulation patterns worldwide. This can disrupt the normal monsoon flow and delay its onset in India.
- **Weak Pressure System:** Sometimes, the monsoon circulation pattern may weaken, leading to a delay in the monsoon onset and reduced rainfall.

Monsoon and Cyclogenesis

- ✓ During the summer monsoon season, a low-pressure trough known as the "Monsoon Trough" forms over the Indian subcontinent.
- ✓ This trough is a region of low pressure extending from the northern parts of India to the Bay of Bengal and the Arabian Sea.
- ✓ The intense heating of the landmass during this period contributes to the formation of this low-pressure area. The Monsoon Trough serves as a focus for the development of low-pressure systems and tropical cyclones.
- ✓ The formation and movement of cyclonic systems can influence the onset and progression of the Indian Monsoon.
- ✓ Cyclonic disturbances and tropical cyclones often bring heavy rainfall to different parts of the country. The arrival of these systems can also trigger the advancement of the monsoon over different regions.
- ✓ At times, strong cyclonic systems can disrupt the normal monsoon flow, leading to a temporary break in the monsoon.
- ✓ Intense tropical cyclones and low-pressure systems may change the wind patterns and atmospheric circulation, causing a lull in monsoon rains during their passage.

Prohibitory Orders in Flood Prone areas

- ❖ Yamuna river in Delhi has risen to an unprecedented level, resulted into flood.
- ❖ Delhi Police announced prohibitory measures under CrPC section 144 in flood-prone areas of the city.
- ❖ Prohibitory orders are aimed towards preventing chaos and public movement in big groups.
- ❖ Such orders are issued to deal with congestion or influx of people.
- ❖ The reason cited by authorities is to ease of rescue operations and save people lives so that they will not enter in flood prone areas.

Other factors affecting the Indian monsoon

The Indian Ocean Dipole (IOD) affects the climate of Australia and other countries that surround the Indian Ocean Basin and is a significant contributor to rainfall variability in this region.

Combined phenomena	Consequences
+ve IOD + La Nina	Extreme flood
-ve IOD + El Nino	Extreme drought
+ve IOD + El Nino	Average rainfall
-ve IOD + La Nina	Average rainfall

Indian Monsoon and the Role of jet streams

- The jet streams are a narrow belt of high-altitude westerly winds in the troposphere.
- During the summer season (during April, May, and June) due to shifting in the ITCZ northwards, a low-pressure area starts developing in the region.
- After the first week of June, the southern branch of the sub-tropical westerly jet stream (STJ) disappears and only the northern branch operates to the north of the Tibetan plateau.
- If the shift of STJ is delayed, and easterly jet streams interact with **STJ then breaks** are observed in the Indian summer monsoon.
- When the summer temperature over the Tibetan Plateau remains high for a sufficiently long duration, it provides strength to the easterly jet stream and results in heavy rainfall over India.
- A low-level south-westerly jet over the Arabian Sea in the summer months, off the coast of Somalia. It is the northern branch of a cross-equatorial flow, giving rise to a major supply of moisture in support of the summer monsoon.

Impacts of Summer Monsoon

- ✚ **Extreme weather events in South Asia:** States such as Madhya Pradesh, Gujarat, Rajasthan, and parts of Maharashtra have been recording excess rainfall this season. Usually, monsoon systems move across Northwest India giving rains over the region there.
- ✚ **Extreme spatial variation:** Marked by extreme localized rainfall events, an unusually dry August and an unusually wet September, the summer monsoon and winter monsoon had a shift from their usual pattern.
- ✚ **Decrease in rice production:** The rice-producing States such as West Bengal, Bihar, Jharkhand, and east Uttar Pradesh have been rain deficit by large margins. Thus leading to a decrease in rice production.

CURRENT CONNECT- JULY- 23

✚ **Floods and droughts:** There is an increase in incidents of floods and droughts due to variable Indian monsoons.

Conclusion

The Indian monsoon has eventually become more intense and uncertain, which impacts the socio-economic aspects of the people in general and farmers in particular. Thus there is an urgent need to understand the adaptation tool and strategies for the variable nature of climate. As climate change is the reality.

PEPPER IT WITH

Northern Limit of Monsoon, Monsoon Trough, IOD, EL Nino, La Nina, Orographic Rain

Indian Ocean Dipole

News Excerpt

The India Meteorological Department (IMD) cited that there was an 80% chance of a positive IOD in the coming months and 15% of a neutral IOD during June-August 2023 season.

About

- The Indian Ocean Dipole (IOD) is an oceanic climate phenomenon that occurs in the Indian Ocean.
- It is characterized by the difference in sea surface temperatures between the western and eastern parts of the Indian Ocean. It has three phases-

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Phase	Impact
Positive Phase <ul style="list-style-type: none"> • In the positive phase of the IOD, the western Indian Ocean, particularly the waters near the Arabian Sea, becomes significantly warmer than usual, while the eastern Indian Ocean, around the Indonesian region, becomes cooler. • This temperature gradient creates an atmospheric pressure difference, leading to changes in atmospheric circulation patterns. 	<ul style="list-style-type: none"> • The positive phase of the IOD is associated with warmer waters in the western Indian Ocean, which leads to increased evaporation. • This results in higher moisture content in the atmosphere, leading to increased rainfall in India. • Regions in the eastern Indian Ocean, such as parts of Indonesia and Australia, may experience reduced rainfall.
Negative Phase <ul style="list-style-type: none"> • Conversely, in the negative phase of the IOD, the temperature gradient between the western and eastern Indian Ocean is reduced, and sea surface temperatures in the eastern part of the ocean become warmer, while the western part becomes cooler. 	<ul style="list-style-type: none"> • The negative IOD can weaken the Indian summer monsoon, resulting in reduced rainfall over the Indian subcontinent. • The enhanced rainfall and warmer waters in the eastern Indian Ocean can create favorable conditions for certain fish species, benefiting fisheries in the region.
Neutral phase <ul style="list-style-type: none"> • The neutral phase of the Indian Ocean Dipole (IOD) refers to a situation when sea surface temperatures in the western and eastern parts of the Indian Ocean are neither significantly warmer nor cooler than average. • During the neutral phase, the temperature gradient between the two regions is relatively weak or non-existent, resulting in a near-balanced state. • In this state, there is no substantial influence of the IOD on the atmospheric pressure difference and, consequently, on the atmospheric circulation patterns. 	<ul style="list-style-type: none"> • During the neutral phase of the IOD, there is no significant influence from the temperature gradient between the western and eastern Indian Ocean. • As a result, typical weather patterns and climate drivers, such as monsoons, have a more dominant role in shaping weather conditions. • The neutral phase generally leads to more predictable weather patterns, making it easier for agricultural planning and water management.

IOD, EL Nino and La Nina

- Positive IOD does have the potential to offset the impacts of El Nino to a small measure in countries like India.
- A positive IOD event is often seen developing at times of an El Nino, while a negative IOD is sometimes associated with La Nina. During El Nino, the Pacific side of Indonesia is cooler than normal because of which the Indian Ocean side also gets cooler. That helps the development of a positive IOD. Many studies suggest that IOD events are induced by ENSO.

- ENSO can trigger IOD in some cases, the phenomenon, many times, is caused by local circulations or subsurface processes within the equatorial Indian Ocean.
- While the IOD and El Niño are distinct, they can influence each other indirectly through teleconnections. Teleconnections refer to the coupling of atmospheric and oceanic circulation patterns between different regions of the world.
- In some cases, El Niño events can lead to a weakening or even a reversal of the typical IOD patterns, resulting in a decreased influence of the IOD on the Indian Ocean climate.

PEPPER IT WITH

AMOC, MJO, El Niño-La Niña
Modoki, Upwelling, Downwelling

Flash floods

News Excerpt

The Chandigarh-Manali highway was blocked due to flash floods.

Pre-Connect

- According to government data from a project by the Assam State Disaster Management Authority, India is the worst flood-affected country in the world, after Bangladesh, and accounts for one-fifth of the global death count due to floods.
- Flash floods have been commonly witnessed in cities like Chennai and Mumbai. Depression and cyclonic storms in the coastal areas of Orissa, West Bengal, Andhra Pradesh, and others also cause flash floods.

About Flash Floods

- Flash Floods are highly localized events of short duration with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood.
- Flash Floods can be caused by a number of things, but is most often due to extremely heavy rainfall from thunderstorms. Flash Floods can occur due to Dam or Levee Breaks, and/or Mudslides (Debris Flow).
- Flash Flooding occurs so quickly that people are caught off-guard. Their situation may become dangerous if they encounter high, fast-moving water while traveling.

Reasons

- ✓ In India, flash floods are often associated with cloudbursts – sudden, intense rainfall in a short period of time. Himalayan states further face the challenge of overflowing glacial lakes, formed due to the melting of glaciers, and their numbers have been increasing in the last few years.
- ✓ Urban areas with extensive concrete and pavement surfaces have reduced natural water absorption. This increases surface runoff, contributing to flash floods during intense rainfall events.
- ✓ Rapid warming or rainfall over snow-covered regions can lead to quick snowmelt, overwhelming rivers and causing flash floods downstream.

Way Forward

- There is a need to scale up Structural measures like-The construction of dams and river dikes, flood-control reservoirs, stormwater detention basin, flood ways, channelization including deepening, widening and improving conveyance capacity, bank protection etc.
- Non-structural measures- Flood forecasting and warning, floodplain management, flood insurance.

PEPPER IT WITH

Urban Floods, Glacial Lake Outburst
Floods (GLOFs), Nature based
Solution

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Landslides in India

News Excerpt

With the advent of monsoon, incidents of landslides are triggered across the country. States along the Western Ghats (Kerala, Goa, Maharashtra etc.) and the Himalayan region are more prone to landslides.

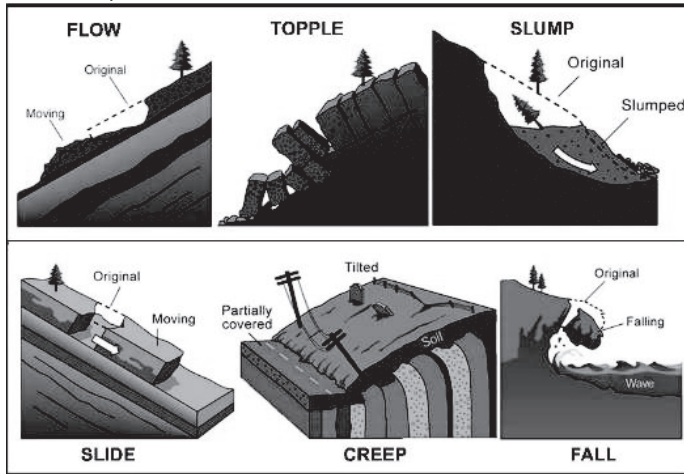
Pre-Connect

Landslide-Prone Areas: In India the hilly areas in 16 States and in two Union Territories in the Himalayan region, sub-Himalayan parts of the northeast and in Western Ghats are landslide-prone region.

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Reasons responsible for landslides

- **Geology and Slope:** The geological composition and structure of the land play a significant role in landslides. Slopes with weak, fractured, or unstable rock or soil are more susceptible to failure.



- **Excessive Rainfall:** Prolonged or intense rainfall can saturate the soil, increasing its weight and reducing its stability. Excess water adds pressure to slopes, leading to landslides.
- **Melting Snow:** During warmer seasons, melting snow and glaciers can saturate the ground, increasing the potential for landslides, especially in mountainous regions.
- **Seismic Activity:** Seismic activity can destabilize slopes and trigger landslides, particularly in areas with tectonic plate movement and active fault lines.
- **Volcanism:** Volcanic eruptions can create volcanic debris and loose materials on slopes, which can lead to landslides during or after the eruption.
- **Anthropogenic:** Deforestation, construction, mining, quarrying, and improper land-use changes can remove vegetation cover, disturb slopes, and alter drainage patterns, increasing landslide risks.
- **River and Coastal Erosion:** Erosion by rivers or coastal waves can undercut slopes, making them more susceptible to failure and triggering landslides.
- **Groundwater Seepage:** Excessive groundwater seepage can weaken slopes, reducing their shear strength and leading to landslides.
- **Mining operations:** Heavy machinery, construction, and blasting activities can create ground vibrations that weaken the stability of slopes, causing landslides.

Impacts

Landslides have devastating impacts socially as well as environmentally. Property damages, injuries, and death are inevitable during a heavy landslide. The damages remain constant even after its occurrence, for instance-water supplies, sewage disposal systems, forests, dams, and roadways can be affected for years after a slide event.

Way Forward

- There is a need to adopt structural measures that involve engineering works for slope stabilisation and control of artificial landslides.
- Additional measures such as the identification and avoidance of landslide-prone areas through monitoring and warning systems should be inducted to mitigate the risk of landslides in India.
- Integration of EIA and National Landslide Susceptibility Mapping with infrastructure development and planning in hilly or mountainous areas in the country can help avoid disasters and human fatalities.

National Landslide Susceptibility Mapping

- ❖ The landslide susceptibility map spatially categorizes the landslide-prone areas into high, moderate or low degrees of proneness.
- ❖ National Landslide Susceptibility Mapping is done in several states, including West Bengal, spanning approximately 4.27 lakh sq. km. of land and forest areas.
- ❖ The GSI has said that over 12% of India's land area is susceptible to landslides.
- ❖ The information detailing area-wise particulars, causes including Slope, Soil type and impact of the flow of water in an area, past incidents, their magnitude and responsible factors is then fed into a GIS-based National Landslide Inventory along with satellite images and geological maps.
- ❖ This vital geo-information can be used for safe land-use zoning regulations and landslide mitigation.
- ❖ BHUKOSH section of the GSI Portal is open for public use where detailed information can be obtained.

PEPPER IT WITH

National Disaster Management Authority, Sendai Framework, Bhukosh Portal

SCIENCE & TECHNOLOGY

Chandrayaan-3

News Excerpt

Recently, ISRO's Chandrayaan-3 takes off for the Moon.

Pre-Connect

Chandrayaan-1: It was the first space mission launched to orbit the Moon and to dispatch an impactor to the surface.

- Its scientific goals included the study of the chemical, mineralogical and photo-geologic mapping of the Moon.
- One of the most important findings of Chandrayaan-1's was related to the question of water on the Moon.

Chandrayaan-2: It was a highly complex mission, which represents a significant technological leap compared to the previous missions of ISRO.

- The mission was designed to expand the lunar scientific knowledge through a detailed study of Topography, seismography, surface chemical composition and mineral identification etc, which would have led to a new understanding of the origin and evolution of the Moon.

About Chandrayaan-3

Chandrayaan-3 is a Moon mission featuring a lunar lander and a rover that will carry out scientific activities on moon surface.

- It will demonstrate new technologies required for interplanetary spaceflight and aims to achieve **India's first soft landing on moon.**
- In addition to ISRO's own deep space communication antenna, the mission will rely on support from ground stations around the world, **coordinated by ESA and NASA.**

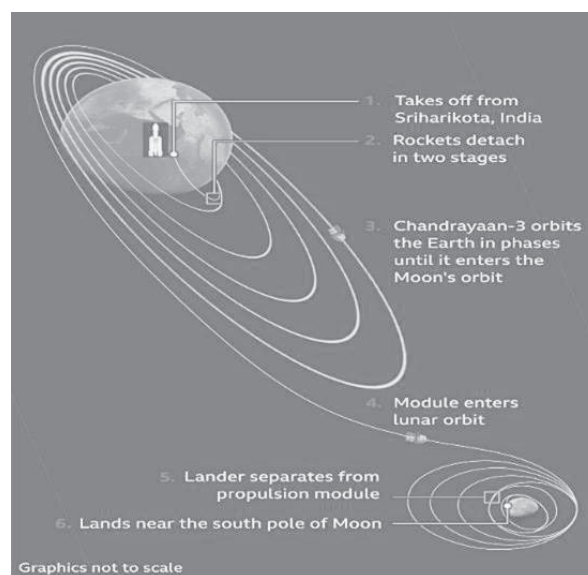
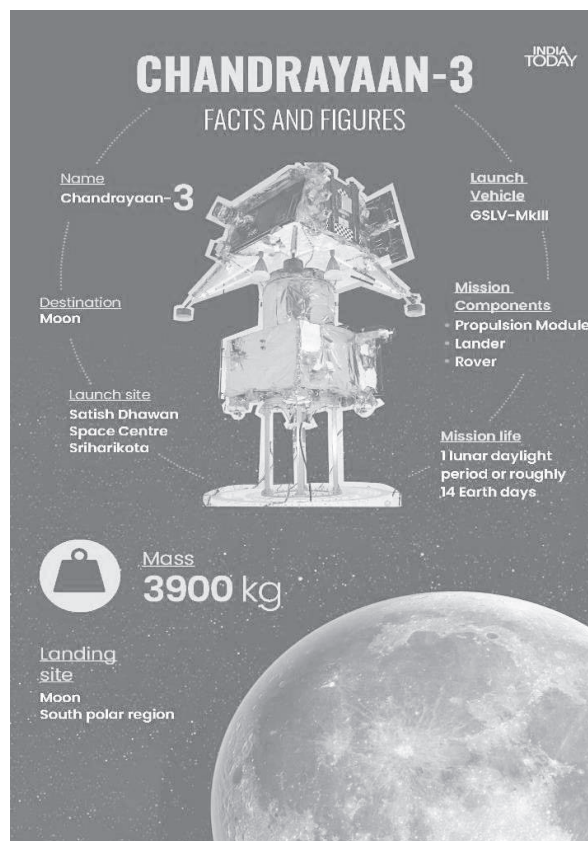
Main components of Chandrayaan-3

- **Lander:** It is responsible for the soft landing on the Moon, which will carry the rover and various scientific instruments to perform in-site analysis.
- **Rover:** It is equipped with payloads that will provide valuable data to the scientific community regarding the properties of lunar soil and rocks including their chemical and elemental compositions.
- **Propulsion Module:** It is the one that will take the lander and the rover to the moon. This module does not land on the moon and instead settles on a parking orbit around the moon on the other hand, the lander and rover, will separate from the propulsion module to land on the moon.

The mission objectives of Chandrayaan-3 mission

- ✓ To demonstrate a safe and Soft Landing on Lunar Surface.
- ✓ Observing and demonstrating the rover's loitering capabilities on the Moon.
- ✓ To conduct in-situ scientific experiments on the materials available on the lunar surface to better understand composition of the Moon.

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Exploring the Lunar South Pole

- **Chandrayaan-3 would be the first to land at the Lunar South Pole** to carry in situ experiments, analysis, and observations to gain insights into the moon's composition.
- The success of India's mission in this crucial location is a groundbreaking development and brings about significant changes in field of deep space exploration.

AI-Powered Moon Mission

The Pragyan rover is equipped with advanced AI technology, enabling it to communicate with the Vikram lander. This technology also assists the rover in various tasks and operations.

Key capabilities of the Pragyan Rover:

- It utilises **motion technology** to navigate the challenging terrain and successfully reach its designated landing site.
- Its AI algorithm plays a crucial role in identifying traces of water and minerals on the lunar surface.

Lunar South Pole

It is known for finding water ice due to its larger area being in permanent shadows and experience colder temperatures which have the potential to support the establishment of a future space station.

Impacts

- ✦ Successful landing will bolster investments. It would attract investor confidence and more private investment in space technology.
 - It will benefit industry in a way that it promotes the cost-efficient and highly reliable space-grade hardware.
 - It can also validate India's industry to become suppliers to lunar programs by other countries.
- ✦ Space start-ups and jobs: India's investment in moon missions alone generated several hundreds of direct high-tech jobs and thousands of indirect jobs.
- ✦ Global positioning Of India: The success of the mission has positioned India among the top four technologically-advanced space nations and paved the way for important international collaborations, similar to the recent Artemis Accord signing between ISRO and the American space agency NASA.

Other missions of India similar to

- ❖ **Indian Human Spaceflight Programme** – Indian in space programme.
- ❖ **Shukrayaan** – India's venus exploration mission.
- ❖ **Mars Orbiter Mission** – India's mars exploration programme.
- ❖ **Aditya-L1** – India's sun observation mission.

PEPPER IT WITH

GSLV, Launch Vehicle Mark-III, PSLV, Luna Mission, Vikas Engine

Way forward

The Chandrayaan-3 mission is a significant achievement for the Indian space program. It represents a remarkable step forward opens up vast growth opportunities and holds significant promise for the Indian economy and India's space sector

Antimicrobial resistance: A global multifaceted phenomenon

News Excerpt

Antimicrobial resistance (AMR) has become a Global issue, which is not confined by political boundaries, and is a threat to all humanity.

Pre-Connect

- Over the last ten years, the prevention, control, and response to AMR has been a high priority for most national governments, international organisations (such as the WHO, FAO, OIE), healthcare communities, and civil society, etc.
- **The Indian Ministry of Health and Family Welfare** published the National Action Plan for containing AMR he objectives of the NAP include improving awareness, enhancing surveillance measures, strengthening infection prevention and control.

Antimicrobial Resistance: A global multifaceted phenomenon

Antimicrobial resistance (AMR) has emerged as one of the principal public health problems of the 21st century that threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi no longer susceptible to the common medicines used to treat them. The problem of AMR is especially urgent regarding antibiotic resistance in bacteria.

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Over several decades, to varying degrees, bacteria causing common or severe infections have developed resistance to each new antibiotic coming to market. Faced with this reality, the need for action to avert a developing global crisis in health care is imperative. The World Health Organization (WHO) has long recognised the need for an improved and coordinated global effort to contain AMR. In 2001, the WHO Global Strategy for Containment of Antimicrobial Resistance has provided a framework of interventions to slow the emergence and reduce the spread of antimicrobial-resistant microorganisms;

In 2012, WHO published The Evolving Threat of Antimicrobial Resistance – Options for Action 2 proposing a combination of interventions that include strengthening health systems and surveillance; improving use of antimicrobials in hospitals and in community; infection prevention and control; encouraging the development of appropriate new drugs and vaccines; and political commitment. Following the indication of a primary role for surveillance, in April 2014, WHO published the first global report on surveillance of AMR collecting experiences from national and international surveillance networks.

This report shows that surveillance data, where available, can be very useful for orienting treatment choices, understanding AMR trends, identifying priority areas for interventions, and monitoring the impact of interventions to contain resistance. The lack of adequate surveillance in many parts of the world leaves large gaps in existing knowledge of the distribution and extent of this phenomenon.

Our review examines the main factors contributing to the development of antibiotic resistance and the consequences for human health focussing on the impact of resistance in species commonly associated with infection (i.e. *Staphylococcus aureus*, *Klebsiella pneumoniae*, non-typhoidal *Salmonella*) in different settings and in the treatment of tuberculosis

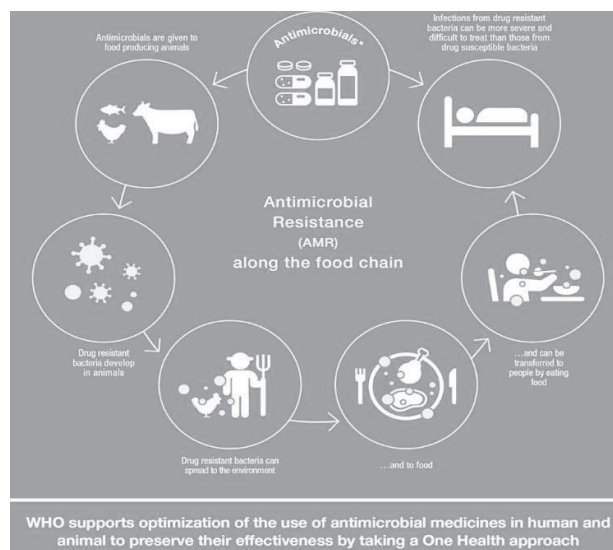
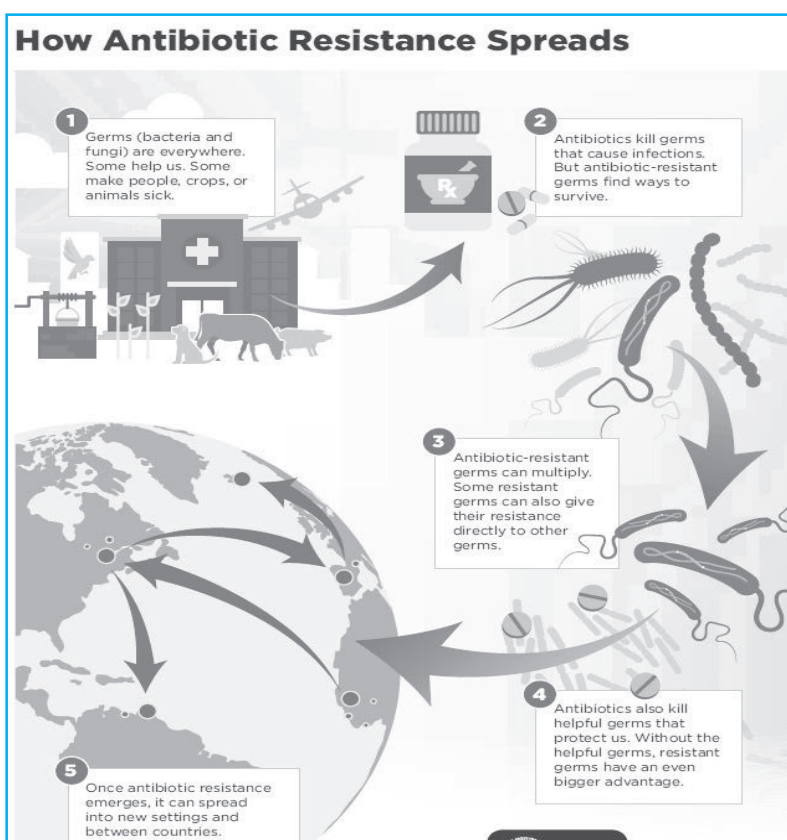
- It has emerged public health problems threatening the effective prevention and treatment of an increasing range of infections caused by bacteria, parasites, viruses and fungi no longer susceptible to the common medicines used to treat them.
 - Bacteria causing common or severe infections have developed resistance to each new antibiotic coming to market.

How Antimicrobial Resistance Happens

It is a naturally occurring process happens when germs like bacteria and fungi develop the ability to defeat the drugs designed to kill them.

Antimicrobial Resistance Challenge in India:

The current magnitude of the problem in India is as follows:



- The high burden of communicable diseases.
- Overburdened public health system.
- Limited laboratory capacity for etiology-based diagnosis.
- Inexpensive and widely available antibiotics without prescriptions.
- Inconsistent infection prevention control (IPC) practices.
- Lack of standardized effective surveillance platforms that monitor healthcare-associated infections (HAI).

Various Programmes initiated by Govt. of India

- ✓ **National action plan on containment of Antimicrobial Resistance (NAP-AMR)**- Is focused on One Health with the aim of involving various stakeholder ministries/departments.
- ✓ **AMR Surveillance Network**- comprise of 30 tertiary care hospitals, both private and government to generate evidence and capture trends and patterns of drug resistant infections in the country.
- ✓ **AMR Research & International Collaboration**- Initiatives to develop new drugs /medicines through international collaborations in order to strengthen medical research in AMR.

Initiatives: To increase awareness about antibiotics misuse

- **The Indian Council of Medical Research (ICMR)**, has initiated antibiotic stewardship program (AMSP) on a pilot project basis in 20 tertiary care hospitals across India to control misuse and overuse of antibiotics in hospital wards and ICUs.
- **Drugs Controller General of India** has banned 40 fixed dose combinations (FDCs) which were found inappropriate.

Way forward

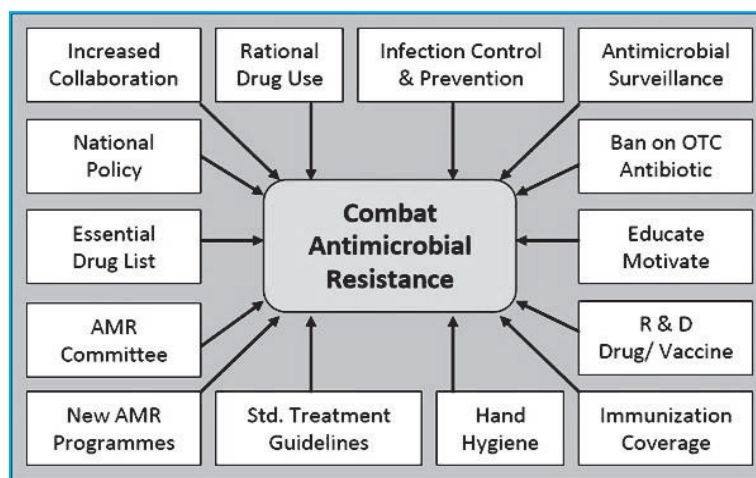
Antimicrobial resistance (AMR) is a critical public health problem, which can shake the foundation of modern health-care. Understanding the gravity of the situation and the threat posed by AMR on health-care, the World Health Assembly (WHA) adopted the Global Action Plan (GAP) on AMR. Following this, many countries have formulated their own National action plans (NAPs).

Global Measures on AMR

Global Action Plan to tackle AMR: The goal of GAP-AMR is to ensure continuity of successful treatment and prevention of infectious diseases with effective and safe medicines that are quality-assured, used in a responsible way, and accessible to all who need them.

WHO launched the Global Antimicrobial Resistance and Use Surveillance System (GLASS): The first global collaborative effort to standardize AMR surveillance.

- **It is a standardized approach** to the collection, analysis, interpretation and sharing of data by countries and seeks to actively support capacity building and monitor the status of existing and new national surveillance systems.



PEPPER IT WITH

Superbug, National Programme on AMR Containment, ICMR

Guillain-Barré Syndrome

News Excerpt

The Peruvian government recently declared a state of national emergency due to a spike in the number of cases of a rare neurological disorder called Guillain-Barré Syndrome.

About Guillain-Barré Syndrome (GBS)

In GBS, body's immune system — which normally protects it from infections and other foreign bodies mistakenly attacks its own peripheral nerve cells.

It's also called:

- **Acute Inflammatory Demyelinating Polyneuropathy**

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Landry's Ascending Paralysis

Causes of GBS

- Approximately 50% of cases occur shortly after a microbial infection (viral or bacterial), like flu or food poisoning. It may be triggered by:
 - Infection with campylobacter: A type of bacteria often found in undercooked poultry.

A study into the vaccine used during the 2009 swine flu outbreak found that for every million people who had the vaccination, there were fewer than 2 extra cases of Guillain-Barré syndrome

Autoimmune trigger: In this, the patient's defense system of antibodies and white blood cells are called into action against the body, damaging myelin (nerve covering or insulation), leading to numbness and weakness.

- Risk factors:** GBS can affect all age groups, It's slightly more common in males than females.
- Vaccinations:** The chances of developing the condition of GBS after having a vaccination are extremely small.

Treatments of GBS

The most commonly used treatments:

Intravenous immunoglobulin (IVIG).

- IVIG is a treatment made from donated blood that contains healthy antibodies.
- It is given directly into a vein.
- These are given to help stop the harmful antibodies damaging the nerves.

Plasma exchange (plasmapheresis)

A plasma exchange, also called plasmapheresis, is sometimes used instead of IVIG.

- This involves being attached to a machine that removes blood from vein and filters out the harmful antibodies that are attacking your nerves before returning the blood to body.

Variants of GBS

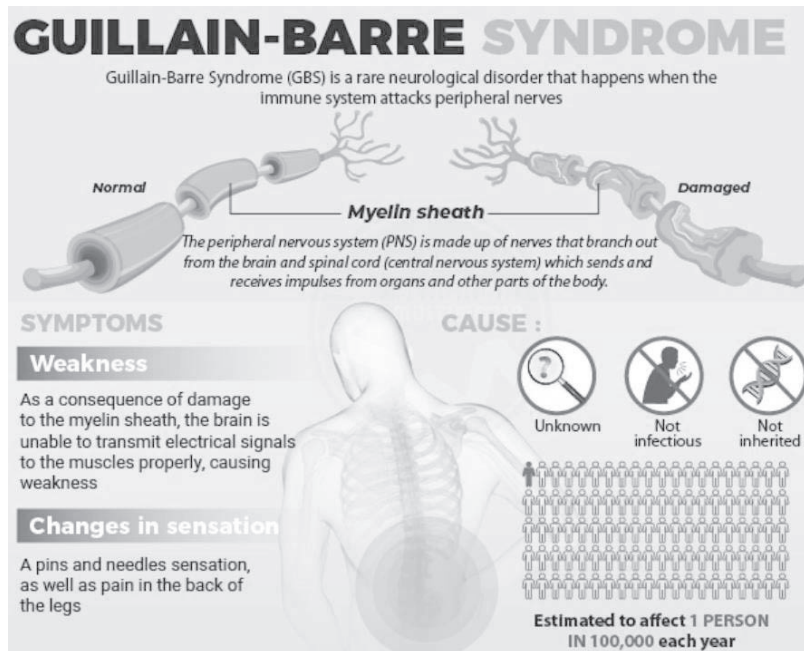
- ✓ **Acute Inflammatory Demyelinating Polyneuropathy (AIDP)** -75% – 80% of cases fall into this 'classic' category.
- ✓ **Acute Motor Axonal Neuropathy (AMAN)** -Similar to AIDP, but without sensory symptoms.
- ✓ **Acute Motor Sensory Axonal Neuropathy (AMSAN)** - Severe variant of GBS more prevalent in Asia, Central America, and South America.
- ✓ **Miller Fisher Syndrome** -Characterized by double vision, loss of balance, and deep tendon reflexes.

India's stand: India is far behind in GBS research as compared to other countries like USA, as there might be a low case report of the GBS in Indian population.

Still, the research focusing on this disease is quite prominent and needs a careful medical attention through research capacity building to look for better treatment of the disease in Indian cases. This study shall help enhance the awareness of the GBS by Indian scientists.

Way forward

- As the field of GBS research develops, and ongoing studies aim to improve diagnostics, treatment and prognostic modelling.
- Investigators of large, worldwide, collaborative studies of the spectrum of Guillain-Barré syndrome are accruing data for clinical and biological databases to inform the development of outcome predictors and disease biomarkers. Such studies are transforming the clinical and scientific landscape of acute autoimmune neuropathies.



PEPPER IT WITH

AMR, Multi-Stakeholder Partnership Platform, Global Action Plan on AMR, TrACSS

Dark Matter

News Excerpt

Recently, in a study scientists estimate that up to 85% of the matter in the universe could be made of what's called dark matter.

Pre-Connect

- The discovery of supernova 1997ff, located about 10 billion light-years away, provided evidence for dark energy.
- About halfway into the universe's history, several billion years ago — dark energy became dominant and the expansion accelerated.
- Universe began with an explosion of space itself - the Big Bang.
- It is everything and includes all of space, and all the matter and energy that space contains.
- **It is thought to consist of three types of substance:** Normal matter, dark matter and dark energy.

About Dark Matter

The visible universe—including Earth, the sun, other stars, and galaxies makes up less than 5 per cent of the mass of the universe. The rest of the universe appears to be made of a mysterious, invisible substance called **dark matter**.

- Unlike normal matter, dark matter does not interact with the electromagnetic force.
- It is completely invisible to light and other forms of electromagnetic radiation.
- We can't see dark matter but we may see its effects through its gravitational force.

About Dark Energy

- It is the name given to the mysterious force that's causing the rate of expansion of our universe to accelerate over time, rather than to slow down. It is a hypothetical form of energy that exerts a negative, repulsive pressure, behaving like the opposite of gravity.
- It makes up approximately 68% of the universe and appears to be associated with the vacuum in space that is distributed evenly throughout the Universe.

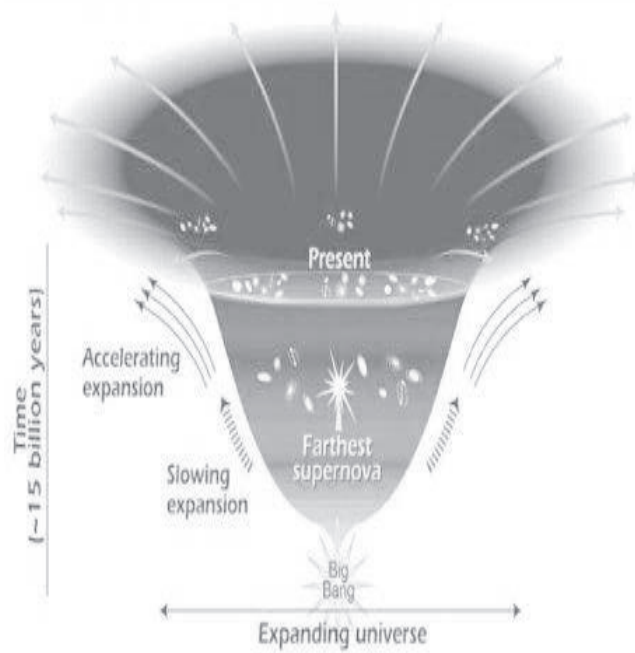
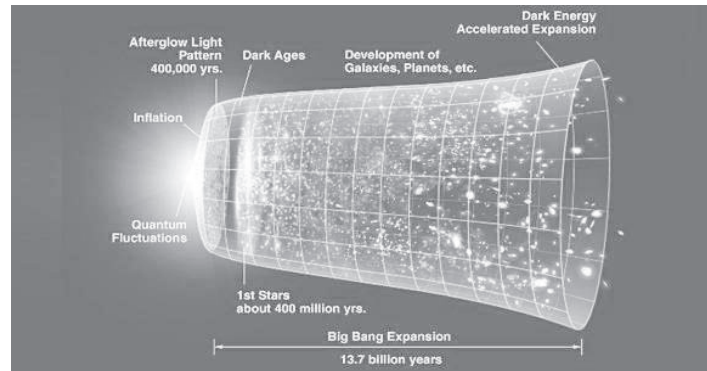
Other Conceivable Theory of Dark Energy

Another theory states that it is a new kind of dynamical energy fluid or field, something that fills all of space but something whose effect on the expansion of the universe is the opposite of that of matter and normal energy.

Importance of Dark Energy

Dark energy is believed to make up about 70% of the mass-energy density of the entire Universe. It plays a central role in structure formation and galaxy evolution, and has measurable effects on the anisotropy of the cosmic microwave background.

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Cosmic Microwave Background

The Cosmic Microwave Background (CMB) is the cooled remnant of the first light that could ever travel freely throughout the Universe. This 'fossil' radiation, the furthest that any telescope can see, was released soon after the 'Big Bang'.

Various experiments on dark energy and matter:

LUX-ZEPLIN (LZ): is a next generation dark matter experiment, selected by the US Department of Energy (DOE) as one of the three 'G2' (for Generation 2) dark matter experiments.

XENON1T: It have been designed to directly detect dark matter, by searching for signs of dark matter 'hitting' ordinary matter, but dark energy is even more elusive.

Way forward

A large part of our universe is made up of so-called "dark matter," which emits no detectable energy, such as visible light, X-rays, or radio waves. However, it reveals itself by its gravity, just like a magnet underneath a table betrays its presence by attracting paperclips and pins.

- ❖ Genome India: **Cataloguing the Genetic Variation in Indians' project:**
- ❖ The project has been sanctioned by Department of Biotechnology (DBT) on for a period of 3 years to 20 institutions from varied disciplines across the country.
- ❖ The proposed target of Whole Genome Sequencing (WGS) is to do it for total 10,000 individuals representing the country's diverse population in 3 years.
- ❖ The information generated from whole genome sequencing can facilitate future human genetics research in the country with greater precision, and to design a genome wide association array for the Indian population to develop precision healthcare and diagnostics for major diseases at affordable costs.

PEPPER IT WITH

Gravitational wave, Gravitational Lensing, LIGO, Neutron star, Quark star, Electroweak star, Supergiant

Newborn genome-sequencing

News Excerpt

Recently, Newborn screening programmes (NBS) have been deployed in some states in India.

Pre-Connect

Genome India: 'Cataloguing the Genetic Variation in Indians' project has been sanctioned by Department of Biotechnology (DBT) in, 2020 for a period of 3 years to 20 institutions from varied disciplines across the country.

About Genomes Sequencing

All organisms have a unique genetic code that is composed of nucleotide bases (A, T, C, and G). **Determining the order of bases is called sequencing.**

- There are two types of genome sequencing:

(i) **Targeted sequencing:** Where only specific genes are sequenced and analysed.

(ii) **whole exome or whole genome sequencing:** Where all of the DNA (whole genome) or all of the coding segments of all genes (whole exome) are sequenced and analysed.

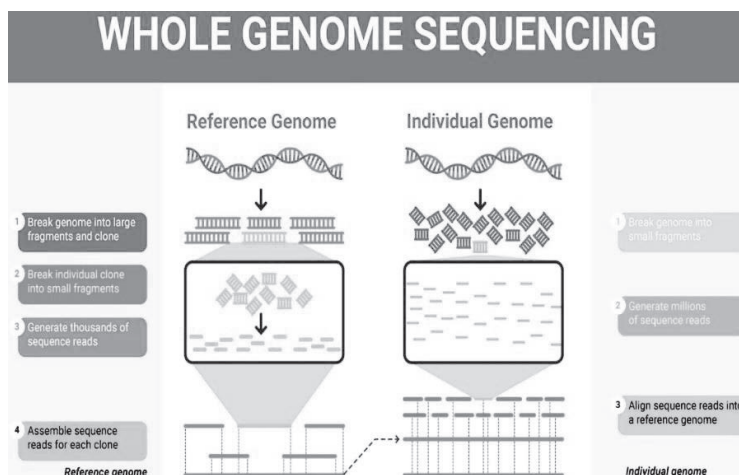
About Genes and Genomes

- **Gene:** They are segments of DNA that contain instructions for building the molecules that make the body work. Most of the molecules are proteins. Parents pass their genes to their offspring
- **Genomes:** It is all of the genetic material in an organism. It is made of DNA (or RNA in some viruses) and includes genes and other elements that control the activity of those genes.

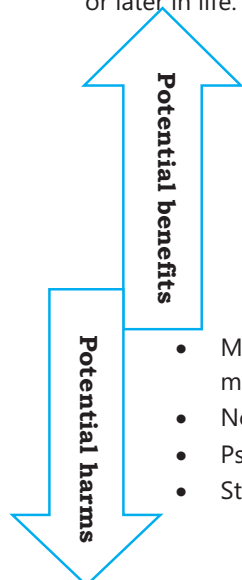
Newborn genome sequencing

It is an early diagnosis which allow to use effective treatments and management of conditions and save an infant from death or disability.

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- It is the practice of collecting and analysing large portions of a newborn's DNA, revealing certain genetic disorders including rare inborn errors of metabolism that the newborn might be at risk of developing in infancy, childhood, or later in life.



- It is an early diagnosis and treatment for more babies with genetic conditions.
- It enables better outcomes and quality of life for babies and their families.
- Significant number of diseases can be treated or managed effectively.
- It Paves the way for proactive health decisions as well as an informed future.

- Many potentially treatable conditions cannot be detected in infants using current newborn screening methods.
- Novel ethical and policy issues raised by genome-wide sequencing.
- Psychological harm to patients and their families.
- Storage of personal genomic data

PEPPER IT WITH

Human Protein Atlas, Genetic atlas of the Indian tribes, DNA bending

Way forward

As the vast potential of rapid newborn whole-genome sequencing is unfolded we stand at a crossroads of hope and introspection, that this technology will help clinicians with the means to detect rare genetic disorders, anticipate susceptibility to disease, and give them the evidence required to prescribe better treatments and shape a healthier future. Yet they should also tread carefully, considering the delicate balance between benefits and harm.

Quantum supercomputer

News Excerpt

Recently, Microsoft publicised a plan for creating the first true quantum supercomputer.

Pre-Connect

The National Mission on Quantum Technologies and Applications (NM-QTA) was launched in 2020 with the goal of creating a strong quantum technology ecosystem in India

Understanding Quantum Computing

Quantum Computing

It is a multidisciplinary field comprising aspects of computer science, physics, and mathematics that utilizes quantum mechanics to solve complex problems faster than classical computers.

- It is an emerging field that harnesses the laws of quantum mechanics to build powerful tools to process information.
- It has the potential to solve computational problems beyond the reach of classical computers. This approach to computing can transform areas such as **chemical engineering, material science, drug discovery, financial portfolio optimization, and machine learning.**

Characteristics

- It is a new generation of technology that is faster than the most sophisticated supercomputer.
- It has the capability of doing a task in minutes which it would take a traditional supercomputer 10,000 years to accomplish.
- They are capable to sift through huge numbers of possibilities and extract potential solutions to complex problems and challenges.

What is a Qubit?

It is the basic unit of information in quantum computing. Just like a binary bit is the basic unit of information in classical (or traditional) computing.

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- They use qubits to store information which carries information in a quantum state that engages 0 and 1 in a multidimensional way.

Need of Quantum super computers

- ✓ It has the potential to revolutionize computation by making certain types of classically intractable problems solvable.
- ✓ It can emerge as a major frontier in cybersecurity.
- ✓ Embrace effortless Machine Learning.
- ✓ It potentially opens up new opportunities in artificial intelligence.
- ✓ It can complex problems like identifying subtle patterns of fraud in financial which cannot be solved by classical computers.
- ✓ It is manifested through applications in **secure communication, disaster management, computing, simulation, chemistry, healthcare, cryptography and imaging among others.**

Quantum technology

It is an emerging field of physics and engineering, encompassing technologies that rely on the properties of quantum mechanics, especially

- **Quantum entanglement**
- **Quantum superposition**
- **Quantum tunnelling.**

Government Initiatives on Quantum computing:

- **National Quantum Mission** - for accelerating Quantum Technology led economic growth and leverage India into a leading nation in the area
- **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)** -to make India a leading player in Cyber-Physical System.
- **The Quantum Frontier mission of the PM-STIAC:** aims to initiate work in the understanding and control of quantum mechanical systems.

Way forward

Quantum Computing (QC) is an emergent technology that is identified as having great potential for quantum advantage in the future.

It has generated a growing interest among scientists, technologists, and industrialists and provided a platform for research to people in the scientific, technical, and industrial fields.

PEPPER IT WITH

PARAM Siddhi-AI, Pratyush, Mihir, AIRAWAT

Telegram Bots

News Excerpt

Recently, reports came out which alleged that a Telegram bot had access to Citizen's documents

Pre-Connect

In 2021, security researchers reportedly found a network of deep fake bots on the platform that were generating non-consensual images of people submitted by users, some of which involved children.

What are bots?

A bot is an automated software application that performs repetitive tasks over a network. It follows specific instructions to imitate human behaviour but is faster and more accurate.

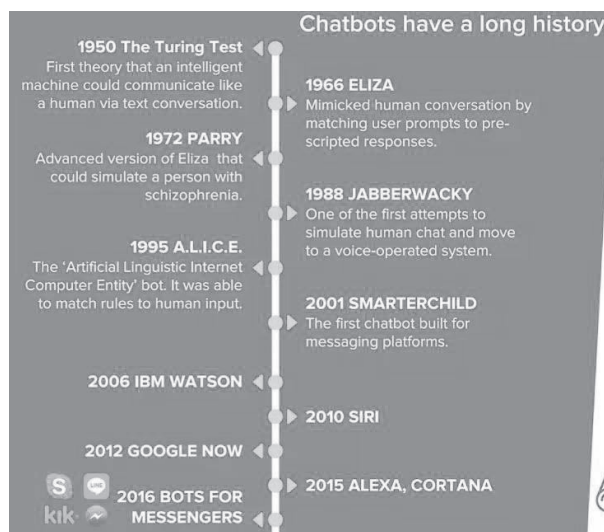
- It can also run independently without human intervention.

What are Telegram bots?

Bots are computer programs that act as agents of a user or another computer program. Bots on Telegram are small applications that run entirely within the platform and can be designed to support any kind of task or service.

- They can host full Web Apps.
- They can be designed to support everything from online stores to arcade games.
- They can also be designed to make it easier for users to access information held within large databases they are connected to.

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Threats from Malicious bots

They perform activities that create security risks for organizations. For example, create disrupt operations, unfair disadvantages, send out unwanted emails, or attempt unauthorized access to sensitive data.

Major Privacy concerns about Chatbots

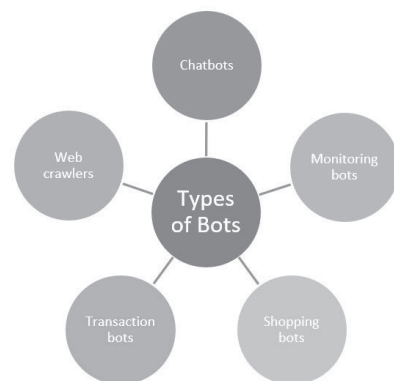
- One of the main concerns about chatbots and privacy is the collection of personal information (such as PI, PII, PHI, SPDIs).
- They are often connected to the internet, which means that they are vulnerable to hacking and cyberattack.
- Chatbot data may be shared with third parties without the user's knowledge or concern.
- The lack of transparency around how chatbot data could be collected, stored, and accessed.

Protection measures

- ✓ Using anti-malware programs and run regular scans to detect and isolate bots in computer systems.
- ✓ Install a firewall to prevent bots from accessing your computer
- ✓ Enforcing strong endpoint security policies
- ✓ Regulate sharing of portable storage drives.
- ✓ Training employees to avoid clicking on unknown or suspicious links in emails

Way forward

AI chatbots have the potential to be a significant enabler at the same time they also raise important privacy concerns. Developers of chatbots must be transparent and responsible with the data they collect, while users must be aware of the potential risks and take steps to protect their personal information.



PEPPER IT WITH

Ask Disha-bot, NICCI
Chatbot, Vani ChatBot

SECURITY

Changing Pattern of Chinese Mobilisation

News Excerpt

The People's Republic of China recently established National Defence Mobilisation Offices (NDMO) (guofang dongyuan bangongshi) and made major amendments to its Reserve Personnel Law.

Pre-ConnectChina's NDMOs

- China started **establishing NDMOs** managed by China's National Development and Reform Commission (NDRC) in:
 - Beijing, Shanghai, Shandong, Fujian, Wuhan, Hunan, Sichuan, Tibet, Inner Mongolia, Hubei, Xinjiang, and some other cities and smaller villages
- The **stated functions** of these offices are:
 - Economic mobilisation
 - Civil air defence mobilisation
 - Traffic readiness during mobilisation
 - Equipment mobilisation
 - Technology mobilisation and planning
 - Organising and implementation of mobilisation processes at the local level.
- However, an additional function appears to be the recruitment of militia and reserve force personnel at the local level.

New Reserve Personnel Law

- China is expanding the reserve force by recruiting more personnel.
- The size of the reserve personnel is estimated to be more than 7 million by some scholars.
- From March 1, 2023, China began implementing the **new Reserve Personnel Law**.
- Earlier, the reserve forces were under the dual leadership of military organs and local Party committees.
- Since July 2020, they have been put **under the People's Liberation Army (PLA)**.
- The latest reform establishes a legal and regulatory system for reserve personnel, and seeks to improve the attractiveness of reserve duty by guaranteeing more benefits for the reservists.
- This law addresses** reservists' military ranks, training, promotion, management, mobilisation, personnel benefits, and retirement.

Significance of these Reforms

- ✓ **Region-Specific Personnel:** Since recruitment and training reserve personnel is at the local level, this would result in more region-specific and contingency-specific militia and reserve personnel.
- ✓ **Ensure Fluent Supply:** Since they are trained under the theatre commands, the recruits will also compensate for the shortage of military personnel in their respective regional contingencies.
- ✓ **Familiarisation with the Region:** Local recruitment reduces regional and centralised hurdles like familiarisation with the region and lack of acquaintance with local authorities.
- ✓ **Strengthens Armed Force:** Expanding the reservist force, making them a more attractive force, and training them with the PLA to keep them combat-ready increases the strength of the armed forces during a contingency.
- ✓ **Faster integration:** Training with the PLA would make reservists capable of using equipment and developing skills, which would help integration within the services a relatively smoother process.

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Structure and Mandate of Chinese Defence Mobilisation

- ❖ China's **National Defence Mobilisation Commission (NDMC)** is the unified structure responsible for coordinating decisions among relevant state and military agencies, departments, and structures.
 - Earlier, military region-level defence mobilisation committees (**MRDMCs**) were responsible for above work.
- ❖ MRDMCs' role has been curtailed, and the NDMOs have been empowered with **local-level mobilisation** and mobilisation-related recruitment.
- ❖ Along with the mobilisation, these offices will also **recruit and manage** the militia and reserve forces at the local level.
- ❖ The theatre commands, however, will still have a major say during wartime.

Criticism of these Reforms

- **Resource Constraints:** The NDMOs under NDRC neither have the experience nor enough resources to recruit cadres for mobilisation.
- **Inconsistent Reforms:** The expansion of the reserve personnel cadre and the adjustment of certain sections within the armed forces appears to run contrary to China's ongoing military reforms, which aim to convert the PLA into a lean and technologically advanced force.
- **Overlapping of Work:** The recently formed PLA Joint Logistics Support Force's function and one of the reservist force's major mandates is helping with logistics and maintaining supply lines.
- **Ambiguity Over Defence Spending:** Like most aspects of PLA spending, there is an ambiguity over how China funds its reserve personnel forces from its defence budget or elsewhere.

Implications for India and the World

- **Border Tensions:** India shares 3488 Km of border with China and some of them are contested by China also (for example, the **clashes in Galwan valley**) and an increase in the size and strength of the Chinese reserve army could potentially increase the potential for conflicts or border disputes.
- **Global Military Balance:** The other countries may feel compelled to respond by bolstering their own military capabilities, potentially resulting in an arms race and increased military spending in the region. For example, **South Korea** plans to spend around \$270 billion over 2023-2027.
- **Diplomatic Relations:** Such steps are likely to strain already depleting diplomatic relations between China and other countries. This may lead to a more assertive foreign policy stance by affected nations and potentially result in a more competitive and challenging geopolitical environment.
- **Further Regional Power Shift:** China's bolstered reserve army could potentially lead to a power shift in the region, potentially impacting the balance of power between China and other countries, including India.
- **Regional Stability:** The increased numbers and strength of the Chinese reserve army may heighten concerns about the potential for military conflicts or escalations, which could have broader implications for peace and stability in the region.

Chinese Reserve Service Personnel

- ❖ It includes reserve units affiliated with the PLA and personnel **registered for**
 - Reserve services
 - Technical personnel
 - Qualified veterans
 - Local cadres
 - People's armed police
 - Militia cadres
- ❖ They are responsible for **combat-readiness** and non-combat military operations during an escalation.
- ❖ They can be **directly transferred** to active-duty troops during an escalation.

PEPPER IT WITH

India- China Border Dispute, Ukraine-Russia War, Agnipath scheme

Way Forward

- ✦ **Strengthening Defence Capabilities:** India and other countries should continue to strengthen their defence capabilities. Investing in modernization, technological advancements, and strategic partnerships can enhance deterrence and ensure a credible defence posture
- ✦ **Diplomatic Engagement:** India and other countries should engage in open and constructive discussions with China to address concerns and potential areas of conflict. For example, India- China **Working Mechanism for Consultation and Coordination**.
- ✦ **Regional Cooperation:** Strengthening regional cooperation mechanisms, such as the **Shanghai Cooperation Organisation (SCO)**, **Association of Southeast Asian Nations (ASEAN)**, the **South Asian Association for Regional Cooperation (SAARC)**, can provide platforms for dialogue and conflict resolution.
- ✦ **Arms Control and Disarmament:** Encouraging transparency in military capabilities, promoting **non-proliferation efforts**, and working towards confidence-building measures can contribute to reducing tensions and preventing an arms race.
- ✦ **Economic Cooperation:** Fostering economic cooperation and interdependence among nations can create mutual interests and reduce the likelihood of conflicts.
 - However, the Quadrilateral Security Dialogue's push for boosting **supply chain resilience** is aimed at reducing economic dependence on China.
- ✦ Encouraging **track two diplomacy**, involving non-governmental actors, think tanks, and academics, can foster constructive dialogue and generate innovative solutions.
- ✦ **People-to-people exchanges**, cultural interactions, and educational programs can also contribute to mutual understanding and promote long-term peace and stability.

India's Defence Dependency

News Excerpt

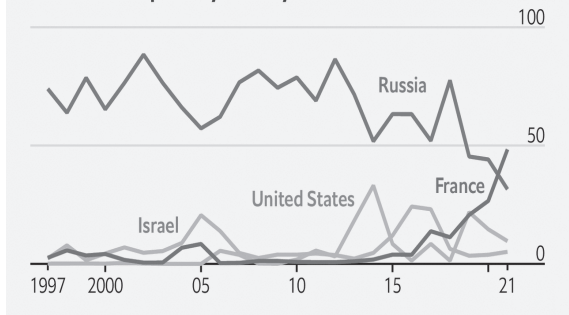
In recent years, India has made attempts to reduce its dependence on arms imports and strengthen its domestic arms manufacturing industry. Russia's war in Ukraine has disrupted some military supplies to India, reinforcing its long-term desire to diversify imports or replace them with home-built hardware.

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Pre-Connect

- India is the **world's largest arms importer**. India bought weapons worth over \$60 billion in the last 20 years, of which 65 per cent or nearly \$39 billion were from Russia, according to **Stockholm International Peace Research Institute data** (SIPRI).
- Almost all of major weapon purchases now include **provisions for joint manufacture** or technology transfer, irrespective of which country it is dealing with.
- Russia** was India's largest arms supplier in the periods between 2013-17 and 2018-22, but its share of arms imports to India fell from 64 per cent to 45 per cent.
- France emerged as the **second-largest arms supplier** to India between 2018-22 at 29 per cent, followed by the US at 11 per cent.
- According to SIPRI, India's arms import from France included **62 combat aircraft and four submarines** and increased by 489 per cent between 2013-17 and 2018-22.

India, arms imports by country, %



Challenges

- **Decreasing over-reliance on Russia:** A big shift away from Russia will take multiple decades.
- **Gap with China:** India aims to narrow the technological gap with better-armed arch-rival China, which is also closely allied with Pakistan.
- **Delayed Russian Supply:** Russia's war in Ukraine has severely dented its ability to deliver weapons and equipment.
 - It would delay deliveries of spares for **Sukhoi Su-30 MKI and MiG-29 jet** fighter planes.
 - The remaining two of the five Russian **S-400 air defence** systems has also been delayed.
- **Drop in arms imports:** According to SIPRI, it can be attributed to several factors including India's slow and complex arms procurement process, and efforts to diversify its arms suppliers, among others.
- **USA Policy Issues:**
 - Stringent US **International Trafficking in Arms (ITAR)** regulations and the two countries are not treaty allies which means the level of technology sharing provided under the **AUKUS deal to supply Australia** with nuclear-powered submarines is not on the cards.
 - **US's suspicions:** That their systems might help the Russians in some sort of way, because of that close India-Russia partnership.

India- US defence Deal

- ❖ India announced significant purchases of US defence equipment including:
 - Over one-billion-dollar order for **GE engines for fighter jets**.
 - A possible \$3 billion deal for **MQ-9B Sea Guardian** drones.
- ❖ In line with self-reliance in defence and Make in India policy, the jet engine deal includes **joint manufacturing in the future**, while the assembly and maintenance of the Sea Guardians will likely be in India.
- ❖ These UAVs can sustain for long duration, fly at high altitude, and have encrypted communication.
- ❖ USA is now **easing India's access to military technologies** sharing more with India than it had with some its closest allies.

Way Forward

- ✓ **Diversification of Imports:** India needs to decrease its reliance on Russia for major defence procurement thus it is buying French fighter jets, Israeli drones, American jet engines and potentially German submarines.
- ✓ **Collaboration with friendly nations:** Collaborating in defence research, joint production, and technology sharing can accelerate India's defence diversification efforts. India is also a member of the **QUAD alliance** with the US, Japan and Australia, which deepens its ties with the West.

- ✓ **Promoting domestic defence industry:** This involves providing incentives, tax breaks, and favourable regulations to encourage foreign and domestic companies to manufacture defence equipment in India and continue to policies such as the "**Make in India**" initiative.
- ✓ **Enhancing research and development:** The government should allocate sufficient funds and resources to research institutions and defence organizations to develop cutting-edge technologies and innovations.
- ✓ **Public-private partnerships:** The measures such as domestic capital procurement, **defence industrial corridors, iDEX, increase in FDI to 100%** through government route etc. encourage public private partnerships.
- ✓ **Export promotion:** India is actively seeking opportunities to export defence equipment and technology to other countries. India's defence exports **surpassed ₹16,000 crores** in financial year 2022-23.

PEPPER IT WITH
Indigenisation of Defence Sector,
India's Defence Exports

ART & CULTURE

Hul Diwas

News Excerpt

Hul Diwas is **celebrated on June 30** for remembering the sacrifice of Adivas is in their fight against British colonial authorities.

Pre-Connect

- The **Santal rebellion or 'Hul'** literally mean revolution. It began in 1855, two years before the uprising of 1857 which is often referred to as first war of independence.
- It was an **"organised war against colonialism"** led by the Santals, standing against the myriad forms of oppression they were subjected to by the British and their collaborators.
- **Led by brothers Sidhu and Kanhu**, it saw the participation of as many as 32 caste and communities rallying behind them.
- The movement also had role of women.
- The rebellion took place in the lush **Damin-i-Koh region** (Damin-i-Koh meaning the skirts of the hills) and took the British by complete surprise. This region falls in present-day Jharkhand, more specifically, around the **Rajmahal Hills of eastern Jharkhand's Sahibganj district**.
- Every year, the state of Jharkhand celebrates June 30 as 'Hul Diwas', marking the beginning of the rebellion, even though some historical accounts date it to the first week of July instead.

Santals

- Today, the Santal community is the **third largest tribal community** in India, spread across Jharkhand-Bihar, Odisha and West Bengal.
- The Santal people or Santalis were **not the original inhabitants** of modern day Santhal Pargana. They had **migrated from the Birbhum** and Manbhum regions (present-day Bengal), starting around the late 18th century.
- The **1770 famine in Bengal** caused the Santals to begin moving and soon, the British turned to them for help.
- With the enactment of the **Permanent Settlement Act of 1793**, the East India Company was desperate to bring an ever-increasing area in its control under settled agriculture.
- They, thus, chose the area of **Damin-i-Koh**, at the time heavily forested, to be settled by the Santals, in order to collect a steady stream of revenue.
- However, once settled, the Santals bore the brunt of colonial oppression, the Santal **migration was forced** by the British merely to collect more revenue. **Predatory money-lenders** and the police were a by product of this system.

Reasons

- ✓ **Social Conditions:** Zamindars, the police, the revenue and courts have exercised a combined system of **extortions, oppressive extractions, forcible dispossession** of property, abuse and personal violence and a variety of petty tyrannies upon Santals.
 - Exorbitant interest on loans of money ranging from 50 to 500 per cent.
 - False measures at the *haut* and the market;
 - Willful and uncharitable trespass by the rich on the growing crops etc.
- ✓ **Organisation and Leadership:**
 - By 1854, there was talk of rebellion in **tribal councils** and meetings. The rebellion finally began after a massive assembly of over 6,000 Santhals representing around 400 villages that took place on June 30, 1855.

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Accounts of the prisoners after the 'Hul'

- ❖ Tribal icon **Birsa Munda accounts** by an IAS officer K Suresh Singh have mention of a deity appearing in Munda's dream. In the case of 'Hul' too similar accounts have come into picture.
- ❖ The book **'Hul Document'** stated that a deity appeared in front of Kanhu Santal after he sent a 'Parwana' (an order) to the 'Bada Sahib' in Calcutta.
- ❖ In a **judicial recording** of one of the main participants, it was said that we consulted for two months that Pontent (Britisher who was in charge of the area) and others don't listen to our complaints and no one acts as our Father and Mother then God descended from heaven in the form of cartwheel and said to me to kill Pontent then you will have justice and Father, Mother.

CURRENT CONNECT- JULY- 23

- With **Sidhu and Kanhu** taking the lead, the rebellion saw the mobilisation of Santal people across the region, who picked up arms and declared their autonomy from the British.
- ✓ **Potential Recruits:** As per some accounts, approximately 60,000 Santals took part in this rebellion.

Significance

- **Indigenous Resistance:** The Santals rose up against the unjust land policies, forced labor, excessive taxation, and other forms of exploitation imposed by the British administration. They sought to protect their traditional way of life and regain control over their land and resources.
- **Scale and Organization:** The rebellion involved a substantial number of Santal tribes people participants. The Santals demonstrated a high level of organization, led by their leaders who provided strategic direction and mobilized their people effectively.
- **Symbol of Tribal Assertion:** The rebellion represented a collective effort to defend their rights, autonomy, and way of life against colonial encroachment.
- **Influence on Indian Nationalism:** It served as an inspiration for subsequent freedom fighters who drew upon the spirit of resistance displayed by the Santals.
- **Landmark Legal Case:** The Santal rebellion led to the enactment of the **Santal Parganas Tenancy Act in 1855**. This legislation provided certain protections for tribal land rights and sought to prevent the exploitation of the Santal community.
- **Cultural Impact:** The leaders and participants of the rebellion are revered as heroes in Santal history and their stories continue to be passed down through generations.

PEPPER IT WITH

Ulgulan or the Great Tumult, Birsa Munda

Lambani Craft

News Excerpt

As part of the third **G20 culture working group (CWG)** meeting in Hampi, a **Guinness world record** was created for the 'largest display of Lambani items'.

Pre-Connect

- The Lambani embroidery is an intricate form of textile embellishment characterised by **colourful threads, mirror-work and stitch patterns**.
- It is practised in **several villages of Karnataka**.
- The Lambani craft tradition involves stitching together small pieces of discarded fabric to create a beautiful fabric.
- The **sustainable practice of patch-work** is seen in many textile traditions of India and around the world.
- The **embroidery traditions** of the Lambanis are shared in terms of technique and aesthetics with textile traditions across Eastern Europe, West, and Central Asia.

Significance

- **Over 450 women artisans and cultural practitioners** from Lambani came together to create embroidered patches with GI-tagged Sandur Lambani embroidery, creating 1,755 patchwork pieces.
- The display titled '**Threads of Unity**' celebrates the aesthetic expressions and design vocabulary of Lambani embroidery.
- The promotion of this craft will not only preserve a living heritage practice of India but will also **support the economic independence of women**.
- The G20 CWG is also espousing '**Culture for LIFE**', an initiative for an environment-conscious lifestyle and a concerted action towards sustainability.



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Alluri Sitarama Raju

News Excerpt

Year-long 125th birth anniversary celebration of legendary freedom fighter **Alluri Sitarama Raju** was celebrated in **Bhimavaram, Andhra Pradesh**. A 30 feet tall bronze statue on the occasion was also unveiled by Honourable PM.

Pre-Connect**Alluri Sitarama Raju**

- Alluri Sitarama Raju was **born on 04 July 1897**, in a village called Mogallu near Bhimavaram in Andhra Pradesh.
- He was a **sanyasi and a strong believer in justice** who raised his voice and waged many a battle against unlawful British policies.
- Raju completed his initial years of schooling in his native village and then shifted to Visakhapatnam for his higher studies.
- By the **age of 18**, he renounced all worldly pleasures and became a sanyasi.
- The **tribals regarded him as a mystic** who would rescue them from British authorities.

Evolution of Methods for Fighting Britishers

- Initially, Sitarama Raju, under the influence of **Gandhiji's Non-cooperation movement**, inspired the tribals to seek justice in the local panchayat courts and boycott the colonial courts.
- However, these steps did **not alleviate their suffering** and eventually, he used this movement to spread awareness about the need for change.
- In August 1922, he launched what is now known as the **Rampa Rebellion** against the British.

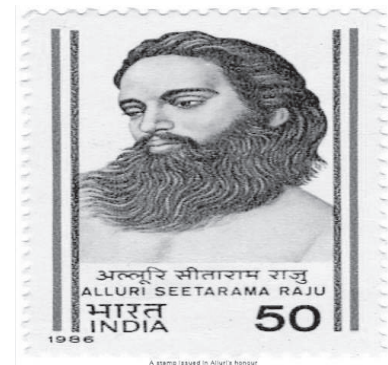
Manyam or Rampa Rebellion (1922-1924)

- Manyam, or the Rampa rebellion, was a tribal revolt led by Alluri Sitarama Raju in the Rampa regions of present-day **Godavari district in Andhra Pradesh**.
- The uprising was **against the exploitative British policies** and oppressive forest laws that threatened the lives of tribes in the region.
- The tribes followed the '**Podu system of cultivation**', whereby every year some amounts of forest tracts were cleared for cultivation, as it was their only source of food.
- **The Madras Forest Act, 1882** was passed restricting the free movement of the tribal communities and prohibiting them from engaging in their traditional Podu agricultural system.
- **The rebellion** was started by looting police stations in Chintapalli, Krishnadevipet, and Rajavommangi by 500 tribals under Raju on August 22, 23, and 24, respectively.
- The tribal masses showed wholehearted participation throughout the rebellion under Raju, who prepared them and spread the **ideals of the non-cooperation movement and Swaraj** in the hills.
- British retaliation forced the rebels to start **guerrilla warfare**, which lasted for two years. The government imposed **martial law and punitive taxes** on the villagers, exerting pressure on them to end the rebellion.
- Meanwhile, the British continued inflicting misery on the tribals. In a bid to alleviate their suffering, Sitarama **Raju surrendered**, with the expectation that he would be given a fair trial in return.
- However, on **07 May 1924**, he was treacherously trapped, tied to a tree, and **shot dead**. He was cremated on 08 May, thus marking the **end of his glorious fight** against the British Government.

Significance

- ✓ **Unity and Integrity**: The life character of Alluri Sitarama Raju is an example of uniting society without any discrimination based on caste and class.
- ✓ **Empathy and Compassion**: Alluri Sitarama Raju was adopted by the tribal society completely and he also made the happiness and sorrow of the tribal society his own happiness and sorrow.
- ✓ **Nishkama Karma**: Working selflessly and fearlessly for the well-being of the deprived sections of society is the message of the life of Alluri Sitarama Raju.

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CURRENT CONNECT- JULY- 23

- ✓ **Armed Guerrilla Warfare:** His military strategies and tactics posed a significant challenge to the colonial administration.
- ✓ **Popular Folk Hero:** He became a popular folk hero in the folklore and ballads of the region, with his story being passed down through generations. His legacy continues to inspire people in the fight against injustice and oppression.

Way Forward

- The **125th birth anniversary** of Alluri Sitarama Raju Garu and the **100th anniversary of Rampa Kranti** was celebrated throughout the year.
- **Restoration of his birth place** at Pandrangi, renovation of Chintapalli police station, construction of Alluri Dhyana Mandir at Mogallu, etc. are symbols of the **spirit of Amrit Mahotsav**.
- Raju represents the **spirit of 'Ek Bharat Shreshtha Bharat'** that has been uniting the country in one thread of unity.
- He was honoured for his valour and fiery spirit with the title, **"Manyam Veerudu" (Hero of the Jungle)**. Every year, the Government of Andhra Pradesh commemorates his birth date, the 4th of July, as a state festival.
- **Sociologists and historians** should make efforts to create awareness about the contribution of freedom fighters like Alluri Sitarama Raju among all citizens, especially the younger generation.

CONTEMPORARY ETHICS CASE STUDIES

1. You are serving as Municipal Commissioner. A proposal is tabled to panel of experts headed by you, from the Tree authority (under Municipal Corporation) for approval to cut and transplant some of the trees in a colony in order to construct a Metro car shed in the area. This area is home to thousands of tribals and Adivasi people, who live around in several hamlets. It is a part of a National Park, home to a range of flora and fauna. Moreover, the area is also seat of a religious sect which is known for its commitment to environment and nature.
For the construction, the forest has to be cleared and the people residing there have to be moved to some other place. Environmentalists from various organizations, along with activists, students and citizens have started a protest after knowing about the proposal and demanded immediate rejection of the proposal. A well-known leader of the religious sect has also threatened to commit suicide if the proposal goes any further.
On the other hand, you are pressurized by a political authority to give a green flag for the proposal and start the felling process as soon as possible. You know that deforestation in the area will increase environmental concerns and eluding from orders of a political authority will have serious repercussions.
 - (a) What are the ethical dilemmas in the given scenario?
 - (b) What are the options available to you? Analyze each option with its consequences.
 - (c) Why do you think such situations arise where developmental activities and environmental concerns come head-to-head with each other?

2. You are the District Magistrate of a rural district where various sanitation issues are observed. Most of the household practices open defecation and have inadequate knowledge of the risks of it. There is negligence towards effective implementation of community development drive for safe sanitation and health care services etc, at this place. Majority of respondents are causing hurdles in achieving objectives of this mission.
The Prime Minister have announced a special summer internship program linked to a wide scheme under which the college students, NCC cadets, NSS Jawans, and other youngsters can join and contribute towards a Clean India. To eliminate these problems, you have been given a responsibility to run an awareness campaign, to promote cleanliness, hygienic practices, and eliminate open defecation by encouraging participation of youth in internship program.
 - (a) Do you think the ethical issues evident in the above case are born out of attitudinal issues?
 - (b) What steps will you take to maximize people participation in the campaign and enroll students to this summer internship program?

3. You have just joined as a Superintendent of Police in one of the naxalism affected district in Chhattisgarh. You have been known for your honesty and integrity in your previous postings. Recently, there has been a major attack by naxal group on a convoy carrying arms and ammunitions for security forces deployed in the region. Some of the officials in your department are lazy and has no motivation to do their job. For speedy arrests and departmental recognition, they arrested some innocent tribal villagers claiming that they are part of that naxal group which stole weapons. The arrests have brought glory to the department and has boosted the morale of officers. As a new officer it has brightened the prospects of your early promotion. This was all going under the supervision of chief police commissioner. You informed chief police commissioner but he advised you to ignore it and stay away from it.
 - (a) What are the ethical issues in the above case?
 - (b) Identify the different options available to you in this situation.
 - (c) Explain what decision you would take under this scenario. Justify your action on the basis of its merit.



SCAN THIS QR
FOR MODEL
CONTENT

PHILOSOPHY OF THE MONTH

The pursuit of perfection

- The pursuit of perfection is the relentless quest to achieve an ideal state of excellence or flawlessness in various aspects of life, driven by the innate desire for self-improvement and the belief in the possibility of attaining an ideal standard.
- It is rooted in the inherent human drive for progress and self-betterment. It stems from the recognition that there is always room for improvement and a striving towards reaching higher potentials.
- The quest for perfection often leads individuals to present a carefully curated facade, suppressing their true selves in fear of being judged for imperfections.
- This hampers authentic connections and fosters a culture of superficiality.
- Perfection, by its very nature, is an unattainable ideal. Setting unrealistic standards of flawlessness can lead to a perpetual cycle of dissatisfaction and disappointment, as individuals may never feel satisfied with their achievements, no matter how remarkable they are.
- The pursuit of perfection often promotes a singular, standardized view of success or accomplishment.
- This disregards the value of diverse perspectives, talents, and approaches that may not align with conventional notions of perfection.
- Embracing imperfection can lead to growth, resilience, and valuable learning experiences.
- Acknowledging and learning from mistakes is an essential part of personal development and can foster a healthier, more balanced approach to life.
- **Perfectionism vs. Excellence:** There is a fine line between striving for excellence and succumbing to perfectionism. Perfectionism can be paralyzing, preventing individuals from taking action until they believe they have perfected every aspect, while the pursuit of excellence allows for continuous improvement without the burden of unattainable standards.

Meditation: The Place of Peace

- Meditation is no longer just a monk's privilege; modern life's pressure and pollution have brought its value to man's attention.
- It must be a daily rite, regarded with the body's feeding's sacredness, not to be missed. People with busy lives and agitated minds are the ones who need meditation most.
- Meditation is not merely a technique or a trend; it is a profound journey of self-exploration. Rooted in various spiritual traditions and philosophies, meditation transcends cultural boundaries and invites us to dive deep into our consciousness.
- The Place of Peace through meditation does not require an escape from life's challenges but a way to discover tranquility amidst the hustle and bustle. Like a serene lake that remains undisturbed even during a storm, meditation empowers us to cultivate inner stillness despite the external chaos.
- Meditation urges us to embrace the present moment fully. By redirecting our focus from regrets of the past or anxieties about the future.
- Meditation dismantles the barriers created by the ego, allowing us to experience a sense of unity with all of existence.
- Meditation serves as a profound path to the Place of Peace within us—a sanctuary of inner serenity that empowers us to face life's challenges with grace and resilience.

PT CONCATENATION

Anthropocene epoch

Context - Geologists have found sediments at **Crawford Lake in Canada's Ontario** that have provided evidence of the beginning of the Anthropocene epoch.

About - Anthropocene epoch is a proposed epoch that denotes the present geological time interval, in which the Earth's ecosystem has gone through radical changes due to human impact, especially since the onset of the Industrial Revolution.

- Analysing the lake's bottom sediments, which have over the years captured the fallouts of large-scale burning of fossil fuels, explosion of nuclear weapons and dumping of plastic and fertilisers on land and in water bodies.
- There are numerous phenomena associated with this epoch, such as global warming, sea-level rise, ocean acidification, mass-scale soil erosion, the advent of deadly heat waves, deterioration of the biosphere and other detrimental changes in the environment.
- The Earth's geological time scale is a fundamental tool used by geologists, palaeontologists and other scientists to study the planet's past.
- The planet's geological time scale is divided into **six** broad categories: **eons, epochs, eras, periods, epochs and ages**. While eon is the broadest category of geological time, age is the smallest category.
- Each of these categories is further divided into sub-categories.
 - For instance, Earth's history is characterised by four eons, including Hadeon (oldest), Archean, Proterozoic, and Phanerozoic (youngest).
 - Criteria** - "Most of the boundaries on the geological time scale correspond to the origination or extinction of particular kinds of fossils." This is also related to something called the **principle of faunal succession**, which states that different kinds of fossils characterise different intervals of time.

LINK IT WITH- geological time scale, paleozoic mesozoic era, Industrial Revolution consequences.

Bastille day

Context - PM Modi in France attended Bastille Day (French National Day)

About- This was the day on which ordinary people stormed Bastille, a 14th century fortress-prison in Paris that was used to incarcerate political prisoners

- The famous writer philosopher Voltaire and the infamous Marquis de Sade had both been kept at the Bastille at various times.
- Bastille Day can be said to have set in motion the decade-long French Revolution, which fundamentally altered French political and social life and influenced the foundational ideas of democracy across the world, popularising slogans such as "**Liberté, Égalité, Fraternité**" (**Liberty, Equality, Fraternity**).
- July 14, 1789, is also the anniversary of **Fête de la Fédération**, an event held in 1790 to celebrate the unity of the French people.
- Why Bastille-** The reason the mob chose Bastille was because people were imprisoned simply because the King said so, without trial and without publicly stated causes.
- Events/terms related to it-** Estates-General, National Assembly, First Estate, Second estate, third estate, Tennis Court Oath,
 - Before PM Modi, Prime Minister Manmohan Singh had attended Bastille Day celebrations in 2009.

LINK IT WITH - French Revolution, Ideas of Liberty, Equality, Fraternity, constitutional monarchy.

Cluster munitions

Context- The United States has decided to send cluster munitions to Ukraine to help its military push back Russian forces entrenched along the front lines.

About- A cluster munition **is a bomb** that opens in the air and releases smaller "bomblets" across a wide area.

- In previous conflicts, cluster munitions have had a **high dud rate**, which meant that thousands of the smaller unexploded bomblets remained behind and killed and maimed people decades later.

CURRENT CONNECT- JULY- 23

- **Humanitarian issues-** war crime- Use of cluster bombs itself does not violate international law, but using them against civilians can be a violation.
 - As in any strike, determining a war crime requires looking at whether the target was legitimate and if precautions were taken to avoid civilian casualties.
- A **convention banning** the use of cluster bombs has been joined by more than 120 countries, which agreed not to use, produce, transfer or stockpile the weapons and to clear them after they've been used. The **US, Russia and Ukraine haven't signed**.

LINK IT WITH - S400, Integrated Guided Missile Development Programme (IGMDP), Howitzer, Dirty Bombs

Total area sown under pulses

Context - According to the Union Agriculture Ministry, the total area sown under pulses in the current kharif season from June till July 9, at 46.32 lakh hectares (lh), was **17.9% lower** than the 56.43 lh during the corresponding period of last year.

About- The overall shortfall in pulses area is a result of cumulative rainfall during the ongoing monsoon season from June 1 to July 11 being **23% below** the historical normal average for this period in Maharashtra, **26.2%** in Karnataka and **30.9%** in Telangana. This is as against a rainfall **surplus of 155.4%** recorded by Rajasthan during this period.

- Problem with Arhar (pulses) -Arhar is a largely rain-fed crop, with hardly 8% of its total area coming under irrigation (it's less than 2% in Maharashtra and about 12.5% in Karnataka). Its relatively **long duration** of 5-6 months requires at least a couple of good showers.
- **Moong** and **urad** are relatively **short-duration** crops, ready for harvesting within 65-75 days after sowing during kharif.
- In contrast, arhar grows over 150-180 days and is harvested only in December-January, unlike September for the other two.
- **Positives of Arhar-** Arhar is mostly cultivated as an inter-crop with soyabean, cotton and even moong and urad because its market rate is Rs 9,500-10,000 per quintal (government-declared minimum support price (MSP) of Rs 7,000).

LINK IT WITH -uneven distribution of rainfall, irrigation, food subsidies, MSP, change in cropping pattern, climate change

Carbon capturing

Context- In a recent research, scientists stated that Carbon capture and storage (CCS) has big role in factories that make cement and fertiliser, as well as in plants that burn rubbish.

About- Carbon capture and storage (CCS) is a way to catch carbon and trap it beneath the earth.

- It is different to carbon dioxide removal (CDR) — where carbon is sucked out of the atmosphere — although some of the technologies overlap.
- The key difference is that CDR brings down the level of carbon dioxide in the atmosphere, cooling the planet, while CCS in fossil fuel plants and factories prevents the gas from getting out in the first place.

Issues- A big part of carbon capture is what fossil fuel companies call enhanced oil recovery — pumping carbon dioxide underground to push out more oil from drying wells. Historically, most captured carbon has been used for this purpose.

LINK IT WITH - climate change, global warming, ocean acidification, green washing.

CMV and ToMV: mosaic virus

Context- CMV and ToMV: The two 'mosaic' viruses that infected tomato crop has led to Sharp increase in the price of tomato due to low production of the vegetable.

About- CMV and ToMV – The two plant pathogens have similar names and cause similar damage to crops, but they belong to different viral families, and spread differently.

- ToMV belongs to the Virgaviridae family and is closely related to the tobacco mosaic virus (TMV). ToMV hosts include tomato, tobacco, peppers, and certain ornamental plants.
- CMV has a much larger host pool that includes cucumber, melon, eggplant, tomato, carrot, lettuce, celery, cucurbits (members of the gourd family, including squash, pumpkin, zucchini, some gourds, etc.), and some ornamentals.

- CMV was identified in cucumber in 1934, which gave the virus its name.

Regions Affected- Maharashtra is affected by cucumber, mosaic virus and Karnataka and other South Indian states tomato mosaic virus.

Sources of spreading of virus - ToMV spreads mainly through infected seeds, saplings, agricultural tools and often, through the hands of nursery workers who don't sanitise themselves properly before entering the fields.

- CMV is spread by aphids, which are sap-sucking insects. CMV too **can spread through human touch**. Conditions of high temperature followed by intermittent rain, which allow aphids to multiply, are conducive to the spread of CMV.
- Aphids are small sap-sucking insects and members of the superfamily Aphidoidea

Measures for controlling the virus – ToMV can remain dormant in weeds and plant remains around the field, and come back later. Fields must, therefore, be cleared of weeds and plant material before fresh planting.

- Plants cannot be cured of ToMV, but the infection can be controlled with good agricultural practices and by following bio safety standards in Nursery, and compulsory seed treatment to stop its spread.

LINK IT WITH - genetically modified crops, inflation, essential commodities act, food storage and distribution.

GIFT NIFTY

Context - GIFT NIFTY is the first cross-border initiative in connecting India and Singapore's capital markets.

About- Gift Nifty is a new derivatives index that was launched, by the National Stock Exchange of India (NSE) in its International Financial Services Centre (IFSC) at GIFT City, Gujarat.

- GIFT NIFTY is a **dollar-denominated** futures contract based on the Nifty 50 index, and is traded on the NSE IFSC exchange. (SGX NIFTY is rebranded and has been given a new identity as GIFT NIFTY).
- The launch of GIFT Nifty is expected to make it easier for foreign investors to trade in the Indian stock market. Currently, foreign investors can only trade in the Indian stock market through the NSE or BSE. However, the NSE and the BSE are located in India, which can make it difficult for foreign investors to trade during Indian business hours.
- GIFT Nifty is regulated by Securities exchange board of India (SEBI).
- Currently, four products are being offered under the umbrella brand of GIFT Nifty — **GIFT Nifty 50, GIFT Nifty Bank, GIFT Nifty Financial Services and GIFT Nifty IT derivatives contract.**

Benefits- Firstly, Gift Nifty will be traded in USD US Dollar, which will eliminate the foreign exchange risk that foreign investors face when trading in Nifty.

- Secondly, Gift Nifty will be traded in the IFSC, which is a tax-free zone. This means that foreign investors will not have to pay any taxes on their profit from trading in Gift Nifty therefore enhancing outreach for investors and enhancing the capital market ecosystem.
- Third, GIFT City is a SEZ, which means that it has simplified regulations. This can make it easier for foreign investors to trade in GIFT Nifty.
- Operating time of 21 hours which includes market timings of India, Europe and USA.

LINK IT WITH - Globalisation, equity market, FDI, FPI, FII.

Carbon molecule in Orion Nebula

- **Context-** The CH₃⁺ molecule, which is also known as **methyl cation**, has been detected in space for the first time by the James Webb Space Telescope (JWST).
- **About-** Scientists found the fingerprints of the CH₃⁺ molecule in light coming from a swirling disk of dust and gas around a young star. The disk is in the Orion Nebula, 1,350 light years from Earth.
- Organic molecules are carbon based. They contain carbon atoms bonded to hydrogen atoms but can also bond to other elements, such as oxygen, nitrogen or phosphorus.
- Everything that makes us and all life on Earth is carbon based. CH₃⁺ is a very simple organic molecule, just one carbon atom and 3 hydrogen atoms. But it reacts with other molecules to form more complex ones. **Its presence in space tells us that basic building blocks for life are out there.**
- The James Webb Space Telescope (JWST) is the largest space telescope, made to conduct infrared astronomy.

- Its high-resolution and high-sensitivity instruments allow it to view objects too old, distant, or faint for the Hubble Space Telescope.

LINK IT WITH- Space Missions, Chandrayaan, Mangalyaan, Hubble space telescope, origin of life.

Low frequency Gravitational Waves

Context- Scientists have found evidence to suggest that the universe is filled with low-frequency gravitational waves.

About- These are ripples in the fabric of space-time that are created by huge objects moving around, colliding, and merging with each other, and predicted by Albert Einstein's General **Theory of Relativity** more than 100 years ago.

- Gravitational waves were first detected in **2015** using an experiment, involving Laser Interferometer Gravitational Observatory (LIGO) detectors. But those waves were of high frequency, believed to be produced by the merger of two relatively small black holes that took place about 1.3 billion years ago.

How were low-frequency gravitational waves detected? - Researchers used six large radio telescopes around the world, including the one in Pune, to study objects called **pulsars** — distant rapidly-rotating neutron stars that emit pulses of radiation, observed from the Earth as bright flashes of light. These bursts take place at extremely precise intervals, and therefore scientists use pulsars as **cosmic clocks**.

- There are much more massive black holes that are constantly merging, black holes that are millions or billions of times larger than our Sun usually at the centre of the galaxies.
- They can produce detectable gravitational waves from times much before their merger. In fact, the merger process can take millions of years, providing a steady supply of gravitational waves. And there are many such events happening all the time. So, there is a sort of **gravitational wave background** that exists all the time.

What are gravitational waves? - In his theory of gravitation, Isaac Newton postulated that the force that makes an apple fall to Earth is also the one that keeps the moon in its orbit around the Earth. Essentially, every celestial body exerts an attractive force on every other. This force, he proposed, was proportional to the masses of the two bodies and inversely proportional to the square of the distance between them. So, the greater the distance between the bodies, the lower the gravitational force between them.

Gravitational waves and electromagnetic waves -

- ✓ Almost 95 per cent of the universe is known to consist of dark matter and dark energy, which don't emit any light or any other electromagnetic waves.
- ✓ Gravitational waves essentially give us the ability to 'see' what remains 'invisible' to us in the universe.
- ✓ The acceleration of electric charges creates electromagnetic waves, propagating in space and time.
- ✓ However, gravitational waves, created by the acceleration of mass, are waves of the spacetime 'fabric' itself.

What is space Time – In his Special Theory of Relativity, Einstein proposed that space and time don't exist as independent entities, combining the three dimensions (height, width and depth) of space and one dimension of time into a single four-dimensional continuum, known as spacetime.

LINK IT WITH - LIGO, Gravitational waves, pulsars, origin of universe, electromagnetic waves.

Wagner Group

Context- Russia's Wagner Private Military Company orchestrated a Mutiny against the country's own defense establishment. Wagner forces embarked on a "march of justice" towards Moscow,

About- The Wagner Group, officially known as PMC Wagner, is a Russian state funded paramilitary organisation headed by Prigozhin, founded in 2014.

Areas of operation- Africa, Middle East, Latin America and Ukraine.

Reason for Mutiny- Limited supply of arms and ammunitions for Wagner whose forces were on the frontlines.

How the Mutiny Ended- Truce was made through the mediation of Belarus president which was concluded by the retreat and relocation of Prigozhin along with his forces to Belarus.

Implications –

- **Political-** Internal security crisis, Civil War
- **Economic** - Mutiny led to increased volatility in Russian ruble exchange rate, and depreciation against the US dollar.

LINK IT WITH - Khalistan issue, N.E insurgency, Ukraine- Russia Crisis, Black Sea wheat deal, state sponsored terrorism.

Shifting in Earth's Axis

Context - Excessive Groundwater extraction shifted the Earth's axis.

About - Humans pumped out around 2,150 gigatons of groundwater between 1993 and 2010, the study says that the planet's axis has drifted at the rate of **4.36 cm per year towards the east**.

Study: -

- 'Drift of Earth's Pole Confirms Groundwater Depletion as a Significant Contributor to Global Sea Level Rise 1993–2010'
- The study also noted that the groundwater extraction from North America and northwestern India, both located at the Earth's midlatitudes, had an **outsized impact** on the polar motion in comparison to the extraction taking place in poles or equators.
- Mass change on the equator or pole cannot affect change in the rotational pole. Rotational pole change is actually associated with the moment of inertia of the Earth, which is sensitive to mid-latitude mass change.
- The water sucked out from the ground for irrigation and meeting the world's freshwater demands, eventually, goes into the oceans.
- Groundwater extraction is one of the major contributors to the global sea level rise. Study shows, estimated that groundwater extraction raised global sea levels by 6.24mm between 1993 and 2010.

Static Info - Earth spins around an imaginary axis which passes through the north pole, its center of mass and the south pole.

- Scientists for years have known that the poles and the axis keep shifting naturally as the mass distribution in and on the planet changes. This phenomenon is known as "**polar motion**".
- There are several other reasons responsible for polar motion like ocean currents and even hurricanes.

LINK IT WITH - ground water depletion/overexploitation, change in weather patterns, shifting of magnetic pole, extreme weather events.

Vilnius Summit

Context- NATO developed war plans and a commitment of troops, equipment and money. Political approval of those plans is at the centre of the annual summit meeting, in Vilnius, the Lithuanian capital.

Background - In a Stimulated Military exercise between German (representing NATO) versus Lithuanian troops, in which NATO won.

- The purpose was to convince Lithuania and other countries bordering Russia that rapid reinforcement and collective defence was necessary.

About- NATO-

- North Atlantic Treaty Organisation is a political and military alliance established by North Atlantic Treaty (Washington Treaty) on April, 1949.
- Primary goal was collective security.
- Presently **31 member** states
- **HQ:** Brussels, Belgium

LINK IT WITH - expansion of NATO, Warsaw Pact, Quad, SCO.



Current account Deficit

Context- The country's current account deficit (CAD) narrowed to 0.2 per cent of gross domestic product (GDP) from 2 per cent in the preceding quarter.

About - The current account deficit (CAD) is a key indicator of a country's external sector. When the value of the goods and services that a country imports exceeds the value of the products it exports, it is known as the current account deficit.

- Together with the fiscal deficit, which is the amount of money that the government has to borrow in any year to fill the gap between its expenditures and revenues, the two make up the '**twin deficits**'.

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Data- CAD narrowed to \$1.3 billion, or 0.2 per cent, of the GDP in the January-March quarter of FY2023 – from \$16.8 billion or 2 per cent of GDP in the preceding quarter. In Q4 FY2022, CAD was \$13.4 billion, or 1.6 per cent of GDP.

Reasons for Decline -

- The RBI said the sequential decline in CAD in Q4 of fiscal 2022-23 was mainly on account of a moderation in the trade deficit, from \$71.3 billion in Q3 of FY2022 to \$52.6 billion in the fourth quarter.
- robust services exports.
- Remittances, which are the second largest major source of external financing after service export, also contributed to narrowing the CAD.

Implications –

- ✓ The current account deficit is essentially the difference between investment and savings. If a country runs a current account deficit, then it needs foreign savings to finance that gap.
- ✓ When the current account deficit is lower, less money is needed to finance the gap. It is also treated as a sign of the resilience of the economy.

LINK IT WITH - Balance of Payment, Twin Deficit, sterilisation of rupee, import substitution.

Bald Eagle

Context- The American Bald Eagle from becoming extinct to flourishing again.

About- The Bald Eagle was on the verge of Extinction and was facing multiple threats to its existence.

Causes of decline-

- DDT or dichloro-diphenyl-trichloroethane was first synthesised in 1874.
- However, it was in 1939 that it was first promoted as an insecticide and began to be used to kill malaria-carrying mosquitos and agricultural pests.
- By the mid to late 1940s, DDT was being widely used for agriculture across the US. While extremely effective as an insecticide, DDT had a catastrophic impact on the bald eagle population.
- Water bodies were soon contaminated with DDT, which in turn contaminated the fish in them. The chemical would enter the bald eagles' bloodstream when they would eat these fish.
- DDT resulted in female eagles laying extremely thin-shelled eggs, leading to nesting failures.

Measures taken- Ban on DDT, captive breeding, protection of habitats.

Indian Context- Death of vultures by the consumption of **DDT** and **diclofenac**.

LINK IT WITH - Convention on Migratory species, BNHS (Bird natural history society), Great Indian Bustard Conservation

Meira Paibis

Context- During his recent visit to Manipur Home Minister Amit Shah met with the Meira Paibis as part of his meetings with various civil society groups.

About- The Meira Paibis, also known as Imas or Mothers of Manipur, are Meitei women who come from all sections of society in the Imphal valley, are widely respected, and represent a powerful moral force.

- Meira Paibis or "women torch bearers", so called because of the flaming torches that they hold aloft while marching in the streets, often at night.

Formation- The Meira Paibi was formed in 1977.

Objectives- One of the largest grassroots movements in the world, its initial focus of fighting alcoholism and drug abuse has now expanded to countering human rights violations and the development of society at large.

- The Meira Paibi womens were the active support base of Irom Sharmila, the activist who remained on a hunger strike in the state from 2000 to 2016 to protest against the Armed Forces Special Powers Act (AFSPA), which gives the armed forces immunity against action in "disturbed" areas.

LINK IT WITH - Narmada Bachao Andolan, SEWA- Self Employed Women's Association, N.E Insurgency, Chipko Movement.

Children and armed conflict

Context- UN report on 'Children and Armed Conflict' said India has been "removed from the report in 2023" in view of measures taken by the government to "better protect children".

About- This is the first time since 2010 that **India has not been named** in the report alongside countries like Burkina Faso, Cameroon, Lake Chad basin, Nigeria, Pakistan and the Philippines.

Concerns-

- Thousands of children are serving as soldiers in armed conflicts around the world or are currently detained as national security threats, often for alleged association with so-called "terrorist" or violent extremist groups.
- These boys and girls, some as young as 8 years old, serve in government forces and armed opposition groups. They may fight on the front lines, participate in suicide missions, and act as spies, messengers, or lookouts.
- Girls may be forced into sexual slavery. Many are abducted or recruited by force, while others join out of desperation, believing that armed groups offer their best chance for survival.
- UN working to prevent the use of child soldiers and to hold accountable the people who send children to fight.

Measures taken- Juvenile Justice Act and POCSO Act are being implemented, child welfare committees established.

Articles-

- Right against exploitation (Articles 23–24).
 - Prohibition of traffic in human beings and forced labour (Article 23).
 - Prohibition of employment of children in factories, etc. (Article 24).
- Right to freedom of religion (Article 25–28).
 - Freedom of conscience.

LINK IT WITH - Bachpan Bachao Andolan, Pencil portal, Swadhar Greh, POSCO Act, Ujjawala Scheme

Energy Transition Index

Context- According to the report released by WEF India ranked 67th on Energy Transition Index.

Finding of the Index- India is the **only major economy** with energy transition momentum accelerating across the Energy Transition Index's equitable, secure and sustainable dimensions. - **WEF**

- Achieving universal access to electricity, replacing solid fuels with clean cooking options and increasing renewable energy deployment have been primary contributors to the improvement of India's performance.
- The pace of thermal power plant expansion has considerably slowed in India, though strategies for early retirement or repurposing of the existing fleet will be crucial.
- Requirement for India's Energy Transition-
 - A skilled workforce,
 - public-private collaboration in innovation, and
 - investment in research and development in low-carbon technologies.
- Sweden topped the list and was followed by Denmark, Norway, Finland and Switzerland in the top five on the list of 120 countries.
- Drawbacks-** Global energy transition has made progress but falls short of 1.5°C pathway: IRENA

About WEF - The World Economic Forum (WEF) is a Swiss nonprofit foundation established in 1971.

- HQ-** Geneva, Switzerland.
- Other reports published by WEF-**
 - Global Competitiveness Report
 - Global Gender Gap Report
 - Global Risk Report
 - Global Travel and Tourism Report.

LINK IT WITH - Paris Agreement, INDC targets, India's Goal of net zero by 2070, PM KUSUM, Saubhagya Scheme.

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National Maritime Heritage Complex (NMHC)

Context- Indian Navy's inaugural artefact, a Sea Harrier 609 maritime fighter aircraft, placed at National Heritage Maritime Complex at Lothal.

About- NMHC- NMHC would be developed in an area of about 400 acres with various unique structures such as Asia's Biggest Under Water Marine Museum, India's Grandest Naval Museum and a lighthouse museum, maritime theme parks, amusement park centers, etc.,

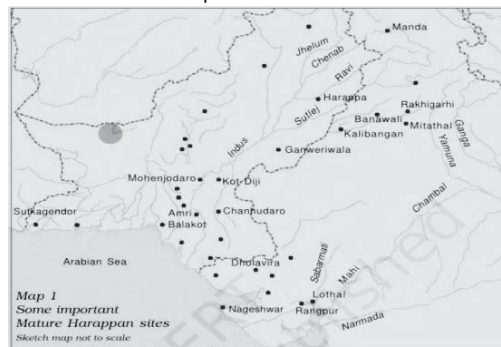
- NMHC will showcase the maritime heritage of the country from ancient to modern times by adopting an edutainment approach using the latest technology to spread awareness about India's maritime heritage.
- NMHC will be developed in Cooperation with the **Republic of Portugal**.

Ministries involved- Ministry of Ports, Shipping and Highway, Ministry of Defence.

About Lothal- Among the prominent cities of the traditional Harappan civilization dating to 2400 BC, located in Gujarat.

- Archaeological excavations have discovered the **oldest man-made dockyard, over 5000 years old**, in Lothal.

LINK IT WITH - Indus Valley Civilization, India Portugal Relations, Tourism, Sagarmala, Indian Heritage.



Bharat 6G Alliance (B6GA)

Context- India Taking lead in 6G technology.

About- B6GA is a collaborative platform consisting of public and private companies, academia, research institutions, and Standards development organizations.

- It will forge coalitions and synergies with other 6G Global Alliances, fostering international collaboration and knowledge exchange.
- **Objective of B6GA** is to understand the business and societal needs of 6G beyond technology requirements, foster consensus on these needs, and promote high-impact open research and development (R&D) initiatives.
 - **Leading Industry standards:** Related patent creation within the country and actively contributing to international standardization organizations such as 3GPP and ITU, B6GA seeks to position India at the forefront of 6G innovation.
- **Associated Ministry-** Dept of Telecommunication under Ministry of Communication.
- **Funding-** To bolster the advancement of 6G technology, the government has allocated a grant of ₹240.51 crores through the Telecom Technology Development Fund (TTDF).

About 6G- Next Generation of 5G technology.

- **Speed -** 100 times faster than 5G
- Ultra-low latency
- **Uses-** Quantum computing and Artificial Intelligence, Render and Transmit Real time Holographic Images
- Communication will be established through Terahertz band of Frequency which is between infrared and microwave on the electromagnetic spectrum.

LINK IT WITH - Artificial Intelligence, Machine Learning, Quantum Computing, IPR.

Entamoeba Moshkovskii

Context- A new diarrhoea causing parasite found in Kolkata

About- Entamoeba Moshkovskii (Amoeba pathogen) had turned pathogenic, it was the leading cause of amoebic infections in humans; **more than half** of the amoebic infections were caused by this pathogen.

Concern- infections caused by E. histolytica, which used to be the predominant amoeba pathogen that caused amoebiasis, were decreasing and the newly pathogenic E. moshkovskii was taking its place.

- Research showed mutations of new pathogenic parasite in adapting to the gut environment of humans or in acquiring other enteric pathogens.

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- Diarrhoea can be **caused by** bacteria, viruses and amoeba pathogens.
- Seasonal Anomaly-
 - Infections caused by *E. histolytica* usually peaked during the wet season and gradually decreased with the arrival of the dry season.
 - the seasonal pattern of *E. moshkovskii* infection had two infection peaks coinciding with summer and post-fall season.

LINK IT WITH- Guillain-Barré Syndrome, Crimean-Cong haemorrhagic fever, Ebola virus disease and Marburg virus disease

Cicada species

Context- Cicada species now considered as endemic to India.

About- Cicada species known as Purana Cheeveeda used to be mistaken for Purana Tigrina, which is of Malaysian origin.

New findings- Based on the differences in their morphological characteristics, the Association for Advancement in Entomology has corrected the error in taxonomic identification and has excluded the Malaysian species from the South Indian cicada fauna.

LINK IT WITH- Apis karinjodian, Pisodonophis kalinga, White Cheeked Macaque

Duchenne Muscular Dystrophy

Context- 'disease-modifying' treatment for Duchenne's Muscular Dystrophy (DMD) developed by Indo-Japanese researchers.

About- DMD is a rare genetic disease that affects **only male children**, with approximately 80,000 patients in India.

- Modification is done by, using a food additive — a beta-glucan produced by N-163 strain of a yeast *Aureobasidium pullulans*.
- Research showed **no adverse reaction** in the participants and it potentially delayed progress of disease **without side effects** to the liver and kidneys.

Static info- Muscles need lubricant. **Dystrophin**, an enzyme secreted in the muscles, helps in wear and tear and regeneration of muscles. Because of the genetic disorder, muscles cannot produce dystrophin.

- Currently available treatments were gene therapy, Exon-skipping and disease modifying agents (anti-inflammatory medicines such as steroids)

LINK IT WITH- cardiomyopathy, Spinal Muscular Atrophy (SMA), Zolgensma, Naegleria Fowleri

Phosphine Gas in Venus Atmosphere

Context- Indication of presence of Life on Venus.

About- Phosphine Gas indicates biological activity which was found in Venus's atmosphere using the James Webb space Telescope (JWST) at Mauna Kea Observatory, Hawaii

- Phosphine on Earth is developed by bacteria that live in very low-oxygen environments.

Other possibilities - Researchers noted that while the presence of phosphine could indicate a possible **biosignature**, it could also be caused by other processes that are not yet fully understood.

LINK IT WITH - traces of water on mars, James Webb space telescope, Goldilocks zone.

SAGAR SAMPARK

Context- Recently, Ministry of Ports, Shipping and Waterways inaugurated the 'SAGAR SAMPARK'.

About- 'SAGAR SAMPARK' is an indigenous Differential Global Navigation Satellite System (DGNSS) that will provide more accurate information to the ships for safe navigation.

- DGNSS is a terrestrial based enhancement system which corrects the errors and inaccuracies in the Global Navigation Satellite System (GNSS) allowing for more accurate positioning information.
 - The DGNSS service will help mariners in safe navigation and will reduce the risk of collisions, groundings, and accidents in the port and harbour areas. This will lead to safe & efficient movement of vessels.

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- **Improved Accuracy** - The error correction accuracy has been improved from 5 - 10 meters to less than 5 meters for 100 Nautical Miles from Indian coastlines.
 - **Ministry**- Ministry of Ports, Shipping and waterways.
- LINK IT WITH-** UNCLOS, SOLAS, IRNSS, GLONASS, GPS, NAVIC

Shelf Clouds

Context- Clouds that resemble a majestic snow-covered mountain seen at Haridwar.

About- Shelf clouds are a type of **Arcus cloud**, characterized by their impressive and intimidating appearance.

- These unique cloud formations often resemble a large, horizontal wedge or shelf extending from the base of a thunderstorm or cumulonimbus cloud.
- It is a shelf hanging from the sky, a 'shelf cloud' is a wide, low cloud that appears before a big storm.
- They **don't cause** tornadoes or extreme weather conditions.
- They often appear ahead of powerful thunderstorms with heavy rain, strong winds, and occasionally hail or tornadoes.

Formation:

- When a cold downdraft from a cumulonimbus cloud comes in contact with the ground, the cold air may spread rapidly along the ground, pushing the existing warm moist air upwards.
- As the cold air comes down, it pushes warm air upward, causing condensation and therefore cloud formation. This process creates the horizontal shape and takes the appearance of a shelf cloud.

Arcus Clouds- An arcus cloud is a low, horizontal cloud formation, usually appearing as an accessory cloud to a cumulonimbus.

- Roll clouds and shelf clouds are the two main types of arcus clouds.

LINK IT WITH- Cirrus Clouds, Cumulonimbus clouds, cloud Burst

Naegleria Fowleri

Context- A 15-year-old boy in Kerala's Alappuzha district has died due to a rare infection caused by Naegleria fowleri or "brain-eating amoeba".

About- Naegleria Fowleri is a single-cell organism found in a warm freshwater environment such as lakes, hot springs and even in poorly maintained **swimming pools**.

- It is so small that it can **only** be seen with a microscope.
- Only one species of Naegleria, Naegleria fowleri, infects people.
- **Naegleria Fowleri** is found in warm natural water bodies and enters the body through the **nasal cavity**, causing fatal brain infection known as **primary amebic meningoencephalitis (PAM)**.
- Naegleria fowleri infection does not spread from person to person, nor does it manifest symptoms when contracted in other forms.
- The amoeba survives on bacteria found in the sediment in lakes and rivers. But it **doesn't** survive in saline conditions and is hence not found in sea water.

LINK IT WITH- Flesh-eating bacteria (necrotizing fasciitis)

Radio Collars

Context- Cheetahs dying due to Radio Collar in Kuno national park.

Background- Two cheetahs died of **suspected septicaemia** from festering neck wounds caused by radio collars in Kuno.

About- A radio collar is an electronic device that contains a small transmitter. This transmitter sends signals through radio waves. These signals reach other devices, where they can be received. The battery inside the radio collar runs the transmitter.

- Downsides of Carrying Something on the body
 - **Additional weight-** Affecting Hunting and animal athleticism.

- Using collar-attached accelerometers, the researchers found that during movement, the forces exerted by collars were generally equivalent to up to **five times** the collar's weight for a lion — and a massive **18 times** for a cheetah.
- Pet dogs get acute moist dermatitis or hot spots. Hot spots are often triggered or aggravated by a tick or flea bite, and can worsen rapidly.
- Tight-fitting collars can cause pressure necrosis — thick bedsores — that begins with rapid loss of hair around the neck.
- Collar induced injuries
- The pathogens that aggravated the wound under the collar could be novel either to the African cheetahs or to Indian conditions.
- These animals could be vulnerable to certain local pathogens to which Indian tigers and leopards may be immune.
- Or they could have carried some dormant pathogens that flourished in new conditions, given the animals' loss of immunity due to stress.
- **According to MoEF&CC** - deaths caused due to radio collars were speculation and not based on scientific evidence.

LINK IT WITH- Project Tiger, Project Elephant, Geo Tagging, Conservation vs Freedom.

Designation of Senior Advocates

Context- Supreme Court published **new guidelines** for the 'senior advocate' designation.

About- Senior Advocate-

- Section 16 (1) of the Advocates Act, 1961 states there shall be two classes of advocates, namely, senior advocates and other advocates.
- Section 16 (2) allows an advocate to be designated as a senior advocate if he consents to it and if the Supreme Court or a High Court is of opinion that by virtue of his ability, he is deserving of such distinction.
- The new guidelines prescribe the **minimum age** as 45 years to apply for the 'senior advocate' designation. This age limit may, however, be relaxed by the Committee, the Chief Justice of India, or a Supreme Court judge if they have recommended an advocate's name.

Historical Background -

- Section 16 of the Advocates Act, 1961, governed the appointment of senior advocates.
- **2017 judgment- Indira Jaising case, 2017** Justice Ranjan Gogoi laid down guidelines for itself and all High Courts on the process of designating senior advocates.
 - setting up of a "permanent committee" and a "permanent secretariat", a body tasked with receiving and compiling all applications for designation.
 - **2018 Guidelines-** The guidelines discouraged the system of 'voting by secret ballot', except in cases where it was "unavoidable."
 - **No minimum age prescribed** for conferring the title of senior advocate.

2023- New Guidelines- Guidelines delivered by a three-judge bench led by Justice SK Kaul.

- ✓ The age limit can be relaxed by the **Committee**, the Chief Justice of India, along with a Supreme Court judge may recommend an advocate's name.
- ✓ **Members of Committee-** CJI (Chairman), two senior-most SC judges, the Attorney General of India, and a member of the Bar nominated by the chair and other members.

LINK IT WITH- Indira Jaising Judgment, Bar council of India, Advocate on record.

BIMSTEC Foreign Ministers Meet

Context- First-ever Foreign Ministers' meeting of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) held in Bangkok, Thailand.

About- BIMSTEC is a regional organisation that was established in 1997 with the signing of the **Bangkok Declaration**.

- Initially known as BIST-EC (Bangladesh-India-Sri Lanka-Thailand Economic Cooperation), the organisation is now known as BIMSTEC and comprises seven members, with Myanmar joining towards the end of 1997, and Bhutan and Nepal in 2004.
- Around 22% of the world's population live in the seven countries around the Bay of Bengal, with a combined GDP close to \$2.7 trillion.
- Cooperation within the BIMSTEC had initially focused on **six sectors** in 1997 (trade, technology, energy, transport, tourism, and fisheries) and expanded in 2008 to other areas.
- In 2021, a reorganisation led to each of the Member States leading certain sectors.
- India focuses on security, along with counter-terrorism and transnational crime, disaster management and energy.**



LINK IT WITH- SAARC, ASEAN, QUAD, G20, SCO

Black Sea Grain Deal

Context- Recently, Russia has withdrawn from the Black Sea Grain Deal.

About- Ukraine being a major exporter of food grains (wheat and corn) and a major contributor to UN's Food Aid Programmes.

- During the Ukraine crisis there was a blockade of its ports, leading to shortage of food grains and further posing a risk to food security in the poorer nations of the world.

Mediated by- UN and Turkey, Black Sea Grain Initiative was signed under which cargo ships would be allowed to travel from and to three Ukrainian ports of **Odesa, Chornomorsk and Pivdennyi (Yuzhny)**, after inspection that they weren't carrying arms.

- Approx **32 million tonnes** of mostly corn and wheat have been exported by Ukraine under the deal.
- Reason for withdrawal-** Russia claims that the promises made to it under the deal have not been fulfilled, and it is still facing trouble exporting its own agricultural products and fertilisers because of the many sanctions the West has slapped on it, such as barriers on payment platforms, insurance, shipping and other logistics are hampering its exports.
 - While there is no direct restriction on Russia's agricultural products but the barriers on payment platforms, insurance, shipping and other logistics are hampering its exports.

LINK IT WITH- Indian grain export to Egypt, import of Palm and sunflower oil from Malaysia and Indonesia

CPTPP - Comprehensive and Progressive Agreement for Trans-Pacific Partnership

Context- UK signed trade deal with CPTPP

About- CPTPP- It is a landmark pact agreed upon in 2018 that cuts trade barriers among 11 countries, including Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.

- Provisions-** The pact requires countries to eliminate or significantly reduce tariffs and make strong commitments to opening services and investment markets.
 - It also has rules addressing competition, intellectual property rights and protections for foreign companies.
- CPTPP is also seen as a bulwark against China's dominance in the region, although Beijing has applied to join, along with Taiwan, Ukraine, Costa Rica, Uruguay and Ecuador.
- Brexit- Britain exited from EU's membership and Customs Union in 2020

LINK IT WITH- G20, ASEAN, SAARC, SCO, BREXIT, QUAD.

Hwasong 18

Context- North Korea has tested Hwasong-18, a new solid-fueled intercontinental ballistic missile.

CURRENT CONNECT- JULY- 23

About- The Hwasong-18 is a solid-fuelled ICBM and was first unveiled at the February 8, 2023 parade earlier this year that commemorated the **75th anniversary** of the founding of the Korean People's Army in DPRK's capital Pyongyang.

- **Why Solid Fuel-**

- Use of solid propellants in the Hwasong-18 allows for faster deployment of missiles.
- Solid propellants can fire faster and accelerate more quickly at liftoff.
- ICBM are ballistic missiles that have a range of over 5,500 km and have nuclear weapons delivery technology.
- Presently, in addition to the DPRK, Russia, the United States, France, the United Kingdom, China, India and Israel are the only countries that are in documented possession of land-based ICBMs

LINK IT WITH- Washington Declaration, ICBM, AGNI 5, Hypersonic Missile- Kinzhal of Russia,

DAC- Defence Acquisition Council (D-DAC)

Context- The DAC has cleared proposals to buy 3 additional Scorpene Submarines and 26 Rafale Marine Fighter jets for the Navy.

About-

- The DAC is an apex decision-making body for the acquisition of military equipment for the Indian Armed Forces.
- **Headed by -** Defence Minister is chairman of the council.
- Formed in 2001, post Kargil war (1999) after the Group of Ministers recommendations on 'Reforming the National Security System', in 2001.
- **Scorpene Class Submarine-** 6 submarines are being built under Project-75. Of these 5 are commissioned- INS Kalvari, INS Khanderi, INS Karanj and INS Vela and INS Vagir. In May this year, the sixth submarine Vagsheer began her sea trials.
 - Scorpene class submarines use diesel electric propulsion systems, with an endurance – ability to operate independently without refuelling – of approximately 50 days.
 - This sort of propulsion system alternates between using diesel (for functioning on the surface) and electric (for functioning underwater).
- Now, the DAC has given clearance for three additional Scorpene submarines to be built by the Mazagon Dock Shipbuilders Limited (MDL).
- Presently, the Navy has 16 conventional submarines in service – seven of the Sindhughosh class (Russian Kilo class), four of the Shishumar class (modified German Type 209) and five of the Kalvari class (French Scorpene class).
- India has **2 nuclear-powered submarines (SSBMs) of the Arihant class** in service.
- **Rafale Marine Fighter jets-** are the naval variant of the Rafale fighter jets, 36 of which are operated by the Indian Air Force.
 - The Marine version of the jets will be slightly different, given that they will operate from aircraft carriers on sea.
- The differences include foldable wings, a longer airframe for landing on carriers, and a tail hook for arrested landing on a carrier.

LINK IT WITH- MiG 29, F35, Tejas, 5th generation Fighter aircraft

Dark Stars

About- "Dark Stars" are theoretical objects powered by particles self-annihilation of dark matter—the invisible stuff that is thought to make up about 85 per cent of the matter in the universe.

Inconclusive- The researchers can't yet prove that the objects are dark stars—only that their characteristics are consistent with being either dark stars or galaxies populated by regular fusion-powered stars.

- In Contradiction to their name, dark stars could typically have glowed a billion times more luminous than the sun and grown to a million times its mass.
- Dark stars have never been definitively observed, but cosmological simulations suggest that they should have formed soon after the big bang from clouds of pure hydrogen and helium that collapsed at the centers of protogalaxies rich in dark matter.

CURRENT CONNECT- JULY- 23

- **Dark matter** is a mysterious form of matter that does not interact with electromagnetic forces; scientists only know it exists because of its gravitational effects, and they don't know what it's made of.

LINK IT WITH- Dark Matter, Dark Energy, pulsars, Neutrinos.

Linking UPI

Context- The India-UAE signed two MoUs to trade with local currencies for cross-border transactions and for interlinking payment systems.

About- The Reserve Bank of India (RBI) and Central Bank of the UAE signed two memoranda of understanding (MoUs).

- The first MoU has provisions for Denominating export contracts and invoices in the local currency which helps avert exchange-rate risks.
- The second of the two MoUs links India's Unified Payments Interface (UPI) with its UAE-counterpart Instant Payment Platform (IPP), linking of card switches, that is, RuPay switch and UAESWITCH.
 - Card switches facilitate communications and transactions between different payment service providers.
- RBI said - UPI-IPP linkage would enable users in either country to "make fast, convenient, safe, and cost-effective cross-border fund transfers".
- As for card switches, the RBI stated, it will "facilitate mutual acceptance of domestic cards and processing of card transactions."
- **Positives-** Sending remittances back to the home country has a high cost of transactions, such as fees, exchange rate margins etc. These costs will be reduced by Linking UPI with IPP.
- The major items of **export** from India to the UAE include mineral fuels, mineral oils and products, bituminous substances, mineral waxes, followed by pearls, precious stones and metals, electrical machineries and equipment, among other things.
- The major items **imported** by India are petroleum crude and petroleum related products.
- India-UAE trade rose to \$85 billion in 2022.
- UAE was **India's third largest trading partner and second-largest export destination** in FY 2022-23.
- India was UAE's second largest trading partner.
- UAE is the fourth largest investor in India.

LINK IT WITH- NPCI collaboration with Singapore, Nepal adopted UPI, BHIM.

1st GSI Survey of Siachen

About - In June 1958, V. K. Raina, a top Indian geologist, led the first **Geological Survey of India** expedition to the Siachen glacier.

Objective- Study of the Himalayan glacier systems which included snout monitoring of the glaciers in the Sikkim Himalayas, Kumaon Himalayas as well as the Kashmir Himalayas.

History- Point NJ 9842 was the last mutually demarcated point between India and Pakistan as per the **Karachi ceasefire agreement** of 1949 and also the point where the Line of Control of the **Shimla Agreement** ends.

- Karachi ceasefire agreement of 1949 under which they had clearly delimited the entire cease fire line right up to the glaciers and agreed to mutually demarcate it.
- **Operation Meghdoot 1984** - launched by Indian Defence forces at Siachen Glacier against adversary Pakistan.

Relevance in present- Pakistan's claim of Siachen region falling on its side of the ceasefire line is rejected as Pakistan never objected to the survey which was widely published and published.

LINK IT WITH- Doklam, Sir Creek, LOC and LAC.

Picolinic Acid

Context- According to IISc study Picolinic acid can block viruses causing SARS-CoV-2 and influenza A.

About- picolinic acid, a natural compound produced by mammalian cells.

- The compound has remarkable ability to disrupt the entry of enveloped viruses into the host's cell and prevent infection.

CURRENT CONNECT- JULY- 23

Terms - Endocytosis- A cellular process often co-opted by viruses and bacteria to enter our cells.

How it works- There is a protein coat found in all viruses, these enveloped viruses also have an extra outer membrane made of lipids derived from the host.

- During their entry into host cells, the virus envelope and the host cell membrane fuse, creating a pore through which the virus's genetic material enters the host cell, and starts replicating.
- Research showed that picolinic acid specifically blocks this fusion, which explains its effectiveness against a variety of enveloped viruses, including **flaviviruses** like the **Zika** virus and the **Japanese encephalitis** virus.
- The compound **did not have much effect on non-enveloped viruses, like rotavirus and coxsackievirus.**

Other benefits - picolinic acid led to an increase in the number of immune cells in the animals.

LINK IT WITH- bacteriophages, rVSV-ZEBOV (Ebola Vaccine), MRNA-GEMCOVAC, Mosquirix, Zolgensma

MAP CONNECT

PLACES IN NEWS-INDIA

Saltoro Mountains

- The Saltoro Mountains are a subrange of the Karakoram Range.
- They are located in the southeast Karakoram on the southwest side of the Siachen Glacier.
- This range is shared with the Saltoro Valley which is located to the westward.
- Saltoro Mountains drop steeply to the valleys of the Kondus and Dansam River.

Aravalli-Delhi Fold Belt

- It consists of highly folded and deformed rocks exhibiting polyphase metamorphism.
- It represents a collage of three independent linear fold belts.
- It is seismically active region; Jaipur was shaken recent by earthquake.
- It is characterised by small and occasionally moderate magnitude earthquakes.

Delhi Ridge

- Dry deciduous forestland called Delhi Ridge, is the northern extension of the Aravalli Range. (Called the lungs of Delhi).
- It protects capital from the hot winds of Rajasthan's desert owing to its greenery.
- The Ridge comprises four parts—Northern Ridge, Central Ridge, South Central Ridge and Southern Ridge.

Debrigarh Wildlife Sanctuary

- Debrigarh Sanctuary freed from human settlement.
- It is located near the Hirakud dam.
- The sanctuary is home to tigers, leopards, bison, hyena, spotted deer, Indian hare, monitor lizard and chameleons, among other animals.

The Kaas Plateau

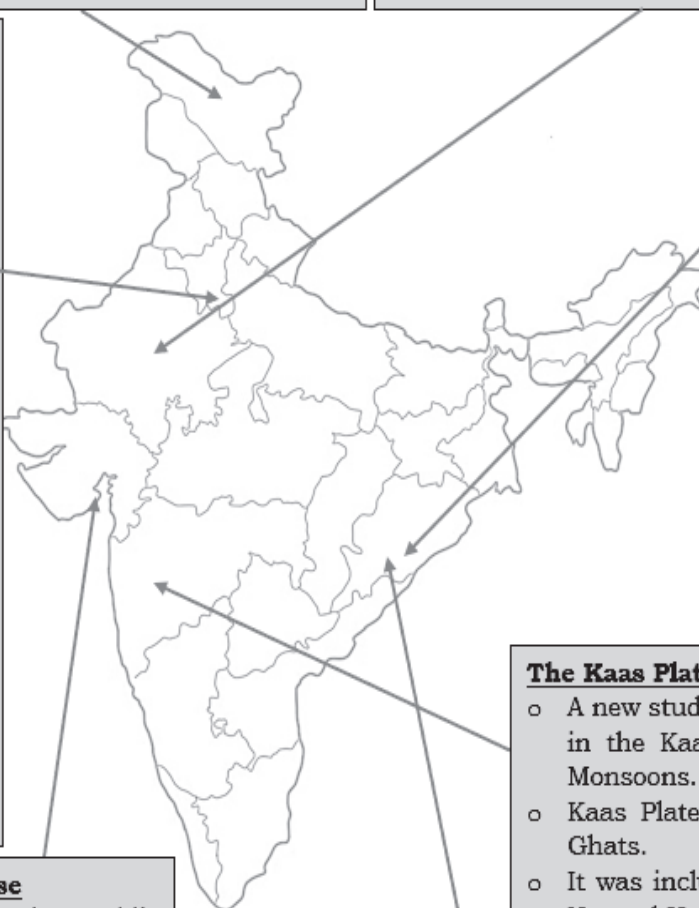
- A new study of the sediments from lake in the Kaas Plateau indicate shift in Monsoons.
- Kaas Plateau, nestled in the Western Ghats.
- It was included in the UNESCO World Natural Heritage Site in 2012.
- It is designated as a biodiversity hotspot.

Surat Diamond Bourse

- It is claimed to be the world's biggest office.
- It will serve as a hub for trade, innovation, and collaboration, further boosting our economy and creating employment opportunities.
- It is aimed to shift diamond industry from Mumbai to Surat.
- It has been built on an area of 66 lakh square feet at DREAM

Natural Arc

- India's biggest natural arch formed 184 million years ago discovered in Odisha by GSI.
- It is located within the dense Chhengapahar Reserve Forest.
- Arch has a maximum length of 30 metres at the base and maximum height of 12 metres.



MAP CONNECT-WORLD

Kakhovka Dam

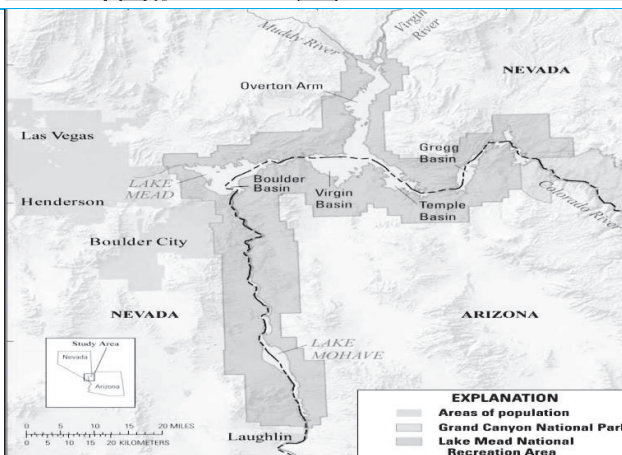
- A huge dam in the Russian-controlled area of southern Ukraine has been destroyed.
- The dam was built in the Soviet era along the Dnipro (Dnieper) River.
- The Dnieper rises on the southern slope of the Valdai Hills of Russia, about, and flows in a generally southerly direction through western Russia, Belarus, and Ukraine to the Black Sea.

Tam Pà Ling Cave

- In 2009, A human skull and jaw bone was found in Tam Pà Ling Cave in northern Laos.
- This cave is frequently overlooked as a possible route on the accepted path of human dispersal in the region.

Lake Mead

- Lake Mead is America's largest reservoir, diminishing waters in recent months.
- Lake Mead is a reservoir formed by the Hoover Dam on the Colorado River.
- However, with significant rain the water level is raise up.

Corinth Canal

- It is tidal waterway across the Isthmus of Corinth in Greece, joining the Gulf of Corinth in the northwest with the Saronic Gulf in the southeast.
- It links the Ionian Sea with the Aegean, effectively turning the Peloponnese peninsula into an island, and creating an international maritime hub that transformed navigation in southern Europe.



DATA OF THE MONTH

Flood and Landslides in India

- According to the National Disaster Management Authority (NDMA), over 40 Mha ha of land in India is prone to flooding.
- According to the Ministry of Jal Shakti (MoJS) reported that the recent estimate on flood prone area in the country is 49.15 Mha, out of which Assam, Bihar, Odisha, Uttar Pradesh and West Bengal are largely affected.

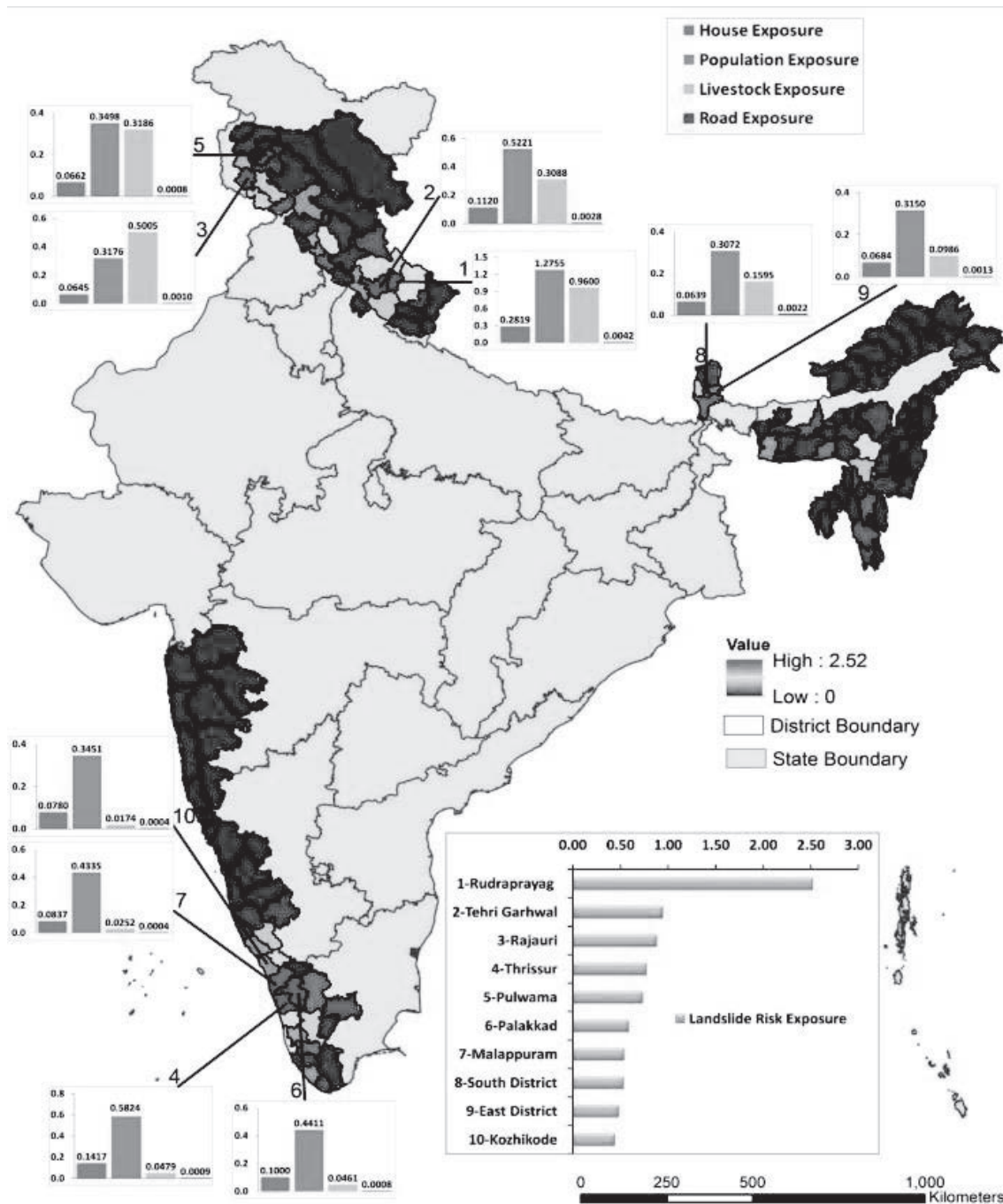
Flood affected area (1998-2022) Statistics at State level

S. No.	State	No. of Districts Affected	Flood Affected Area (Ha)
1	Andhra Pradesh	24	738200
2	Arunachal Pradesh	5	3373
3	Assam	35	2464958
4	Bihar	38	3976861
5	Chhattisgarh	12	12029
6	Delhi	7	5848
7	Gujarat	16	517770
8	Haryana	9	67852
9	Jammu & Kashmir	10	43022
10	Jharkhand	2	2966
11	Karnataka	26	280156
12	Kerala	10	79377
13	Madhya Pradesh	30	210809
14	Maharashtra	20	233590
15	Manipur	9	88352
16	Meghalaya	2	8787
17	Odisha	23	1424313
18	Punjab	15	142692
19	Rajasthan	10	155144
20	Tamil Nadu	24	552010
21	Telangana	14	102318
22	Uttar Pradesh	72	2662942

Flood affected area Severity categories based district level (1998-2022) Statistics

Flood affected area (Ha)	No. of Districts Affected
>2,00,000	12
1,50,000 -2,00,000	11
1,00,000 - 1,50,000	34
50,000 - 1,00,000	50
25,000 - 50,000	48
10,000 - 25,000	66
5,000 – 10,000	52
1,000 – 5,000	76
100 – 1,000	86
Total	435

- Approximately 0.42 million sq. km or 12.6% of land area, excluding snow covered area, is prone to landslide hazard. Out of this, 0.18 million sq. km falls in North East Himalaya, including Darjeeling and Sikkim Himalaya; 0.14 million sq. km falls in North West Himalaya (Uttarakhand, Himachal Pradesh and Jammu & Kashmir); 0.09 million sq. km in Western Ghats and Konkan hills (Tamil Nadu, Kerala, Karnataka, Goa and Maharashtra) and 0.01 million sq. km in Eastern Ghats of Aruku area in Andhra Pradesh. In India, landslides mostly occur in the monsoon season.



THEMATIC ESSAYS

1. Individual Action is the core of Climate Responsibility
2. Human civilization and culture have developed along with the freedom of ideas and resistance
3. "There is no force equivalent to a woman determined to rise" - WEB Du Bois

SCAN THIS QR TO
GET ANSWER



CONCEPT CLEARING ASSIGNMENT

1. What is the existing legal framework governing Internet shutdowns in India? What kind of measures should be taken to strike a balance between security concerns and safeguarding fundamental rights in the digital age?
2. LGBT Community is the new untouchable class. Do you agree? Also, explain the causes behind their discrimination and marginalization in Indian society.
3. What measures do you suggest in the Representation of Peoples Act to check the criminalization of politics?
4. Critically analyze the challenges pertaining to Uniform Civil Code while respecting constitutional values. Suggest a roadmap for its gradual adoption in a democratic and pluralistic society.
5. The pharmaceutical sector is considered one of the strongholds for India in the global market. Comment.
6. Discuss the role and significance of Intellectual Property Protection in fostering innovation, creativity, and economic development in India.
7. Discuss the concept of Carbon Circular Economy (CCE) as a transformative approach to address climate change and achieve sustainable development. Analyze the potential challenges and benefits associated with the implementation of CCE in India.
8. What are the environmental benefits and carbon abatement potential of Green Hydrogen across various industries, such as transportation, manufacturing, and power generation? Evaluate the economic viability and scalability of Green Hydrogen applications in these sectors.
9. What are the challenges faced in the operationalization of Open Market Sale Scheme (OMSS)? Analyze the factors influencing the government's decision to utilize OMSS and its effectiveness in managing the food security of the country.
10. What are the concerns raised by WTO member countries regarding India's sugar subsidy programs and their impact on global sugar trade?
11. Discuss the role of technological advancements and innovation in shaping the geopolitics of Rare Earth Elements (REEs) and semiconductor rivalry.
12. Analyze the geopolitical implications and potential benefits of Iran's membership in the SCO. Discuss how Iran's inclusion may influence regional dynamics, security concerns, and economic cooperation among member countries including India.
13. Discuss the technological significance of Chandrayaan-3 in India's space program. Also, highlight its contributions to the global scientific community.
14. What are the challenges and risks posed by bots in terms of data collection, storage, and sharing?
15. What is the contribution of Alluri Sitarama Raju to the Indian freedom movement?

PT Oriented Questions

1. Consider the following Articles:

1. Article 14
2. Article 15
3. Article 21
4. Article 51A (e)

How many of the above are associated with the bodily autonomy of Women?

- (a) Only one (b) Only two
(c) Only three (d) All four

2. Consider the following provision:

1. Indian Telegraph Act provides for a temporary shutdown of telecom services in a region on grounds of public emergency.
2. Under Section 69(A) of the IT Act, 2008, a Circle officer of the police can issue an order for an internet shutdown in the entire locality.

How many of the statements given above are correct?

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

3. Which of the following act require a candidate to furnish information on whether She/he is accused of any offense with imprisonment of two years or any pending cases in which charges have been framed and whether they have been convicted for one year or more?

- (a) election conduct act
(b) Representation of People act
(c) Section (2) of Registration of Electors Rules
(d) None of the above

4. Consider the following statements:

Statement-I: Uniform Civil Code (UCC) is a constitutional objective aimed at ensuring equitable justice for communities.

Statement-II: Article 44 of the Constitution lays down that the state shall endeavour to secure a UCC for citizens.

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

5. Consider the following Pairs:

Article	Subject Matter
1. Article 23	Right against Exploitation and prohibits acts like human trafficking
2. Article 14	Equal protection of the laws
3. Article 29	Defines the right to conserve distinctive culture
4. Article 21	Right to access the Internet

How many of the above pairs are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

6. Consider the following statements regarding Central Drugs Standard Control Organization (CDSCO):

- 1. It is established by the Drugs and Cosmetics Act of 1940.
- 2. It functions under the aegis of Ministry of Chemicals and Fertilisers.

How many of the statements given above are correct?

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

7. The global Multidimensional Poverty Index (MPI) is released by which of the following?

- (a) United Nations Environment Programme and Organisation for Economic Co-operation and Development
- (b) European Bank for Reconstruction and Development and International Labour Organization
- (c) United Nations Development Programme and the Oxford Poverty and Human Development Initiative.
- (d) Asian Infrastructure Investment Bank and United Nations University

8. Consider the following statements:

Statement-I: Liberalised Remittance Scheme was introduced by RBI to facilitate hassle-free foreign exchange.

Statement-II: Under this scheme, an Indian resident can transfer funds up to 500 USD in a financial year outside India.

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

9. Consider the following statements regarding Open Market Sale Scheme:

- 1. This scheme is started by NITI Aayog to curb food supply related issue in international market.
- 2. This scheme is operationalised by the Agricultural and Processed Food Products Export Development Authority.

How many of the statements given above are correct?

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

10. Consider the following statements regarding Tropical rainforests:

- 1. They are mainly located between the tropic of Cancer and Tropic of Capricorn.
- 2. They are found in Central and South America, Western and Central Africa.
- 3. In India, they are situated in Central Highland and Terai region of Indo-Gangetic belt.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None of the above

11. With reference to Lambani craft, which one of the following statements is correct?

- (a) It is associated with the leather puppets of Andhra Pradesh
- (b) It is brass broided coconut shell craft of Kerala
- (c) It is an intricate form of textile decoration of Karnataka
- (d) It is a delicate hand-embroidery of Kashmir

12. Consider the following statements:

- 1. The positive phase of the Indian Ocean Dipole (IOD) is associated with warmer waters in the western Indian Ocean.
- 2. During the neutral phase of the IOD, there is no significant influence from the temperature gradient between the western and eastern Indian Ocean.

3. The negative IOD can weaken the Indian summer monsoon.

How many of the statements- given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None of the above

13. Consider the following pairs:

Hydrogen Type	Description
1. Grey Hydrogen	It is produced via coal or lignite gasification
2. Blue Hydrogen	It is produced via natural gas or coal gasification combined with carbon capture storage (CCS) or carbon capture use (CCU) technologies
3. Green Hydrogen	It is produced using electrolysis of water with electricity generated by renewable energy

How many of the above pairs are incorrectly matched?

- (a) Only one pair (b) Only two pairs
(c) Only three pairs (d) None

14. Consider the following statements regarding International Seabed Authority (ISA):

- In 1994, ISA was established as an autonomous international organization under the United Nations Convention on the Law of the Sea (UNCLOS).
- As per Article 20 of UNCLOS, all States Parties to UNCLOS are ipso facto members of ISA.
- The ISA is responsible for regulating and granting contracts (licences) for deep seabed mining.

How many of the statements- given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None of the above

15. Consider the following statements regarding bot:

- A bot is an automated software application that performs repetitive tasks over a network.
- Bots can host full Web Apps.
- A bot can run independently without human intervention.

How many of the statements- given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None of the above

16. Consider the following statements regarding dark matter:

- Unlike normal matter, dark matter does not interact with the electromagnetic force.
- Dark matter is completely invisible to light and other forms of electromagnetic radiation.

How many of the statements- given above are correct?

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

17. The Vilnius Summit, recently seen in news is associated with.

- (a) European Union (b) NATO
(c) G20 (d) Vienna Pact

18. Consider the following statements:

- DMD (Duchenne Muscular Dystrophy) is a condition in which the body does not produce Dystrophin.
- Dystrophin is needed to lubricate muscles.
- DMD affects both male and females.

How many of the statements- given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None

19. Consider the following statements regarding picolinic acid:

- It is a natural compound produced by mammalian cells.
- It has remarkable ability to disrupt the entry of enveloped viruses into the host's cell and prevent infection.

How many of the statements- given above are correct?

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

20. Consider the following statements regarding Defence Acquisition Council (DAC):

- It is an apex decision-making body for the acquisition of military equipment for the Indian Armed Forces.
- It is chaired by Chief of Defence Staff of the Indian Armed Forces.
- It is formed after the first war between India and Pakistan.

How many of the statements- given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None

21. The 'Comprehensive and Progressive Agreement for Trans-Pacific Partnership' (CPTPP) is a trade pact among which of the following countries?

- Australia
- Brunei
- Canada
- Chile
- Japan
- Malaysia

Select the correct answer using the code given below:

- (a) 2, 3 and 4 only (b) 1, 2, 5 and 6 only
(c) 3, 4, 5 and 6 only (d) 1, 2, 3, 4, 5 and 6

22. The term "Meira Paibis" sometimes found in news, refers to

- (a) Women based civil society group
(b) Newly discovered planet
(c) Endangered Fish Species
(d) Invasive Alien Species

23. Which of the following reports are published by World Economic Forum?

1. Global Competitiveness Report
2. Global Gender Gap Report
3. Global Risk Report
4. Global Travel and Tourism Report

Select the correct answer using the code given below:

- (a) Only one (b) Only two
(c) Only three (d) All four

24. Consider the following statements regarding Jet Streams:

1. The jet streams are a narrow belt of high-altitude westerly winds in the troposphere.
2. When the summer temperature over Tibetan Plateau remains high for a sufficiently long duration, it provides strength to the easterly jet stream and results in heavy rainfall over India.

How many of the statements given above are correct?

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

25. "SAGAR SAMPARK" refers to

- (a) Global Navigational Satellite system for Maritime Sector
- (b) Connectivity between states having coastline
- (c) Indian Navy mission to send relief measure to Sri Lanka
- (d) Curbing illegal smuggling in the high seas through engagement with locals.

26. With reference to ancient South India, Korkai, Poompuhar and Muchiri were well known as (UPSC 2023)

- (a) capital cities
- (b) ports
- (c) centres of iron-and steel making
- (d) shrines of Jain tirthankaras

27. Consider the following organizations/bodies in India: (UPSC 2023)

1. The National Commission for Backward Classes
2. The National Human Rights Commission
3. The National Law Commission
4. The National Consumer Disputes Redressal Commission

How many of the above are constitutional bodies?

- (a) Only one (b) Only two
(c) Only three (d) All four

28. With reference to anti-defection law in India, consider the following statements: (UPSC 2022)

1. The law specifies that a nominated legislator cannot join any political party within six months of being appointed to the House.
2. The law does not provide any time-frame within which the presiding officer has to decide a defection case.

Which of the statements given above is/are correct?

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

29. "System of Rice Intensification" of cultivation, in which alternate wetting and drying of rice fields is practised, results in: (UPSC 2022)

1. Reduced seed requirement
2. Reduced methane production
3. Reduced electricity consumption

Select the correct answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

30. Gandikota canyon of South India was created by which one of the following rivers. (UPSC 2022)

- (a) Cauvery (b) Manjira
- (c) Pennar (d) Tungabhadra

Answer Key

1. D
2. A
3. B
4. A
5. D
6. A
7. C
8. C
9. D
10. B

11. C
12. C
13. D
14. B
15. C
16. C
17. B
18. B
19. C
20. A

21. D
22. A
23. D
24. C
25. A
26. B
27. A
28. B
29. D
30. C

UPSC

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OUR UPSC CSE 2022-23 TOPPERS WITH DR. KHAN

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Classroom Course **21st Aug.**

JAIPUR

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Classroom Course **4th Sep.**

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Classroom Course **5th Sept.**

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JAIPUR

82908 00441

Classroom Course **21st Aug.**

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Quality of Physical Classes with Convenience of Online

FOUNDATION COURSE **21st August** Starting From...

FOUNDATION COURSE WEEKEND BATCH

Classroom & Online Mode

Starting From...
5th August

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DELHI
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97173 80832

DELHI
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JAIPUR
(TONK ROAD)
82908 00441

BHOPAL
(M.P. NAGAR)
75099 75361

INDORE
(BHAWAR KUAM)
9893 772941

PATNA
(EXHIBITION ROAD)
74639 50774

KOLKATA
(SALT LAKE, SEC-V)
90077 09895

BENGALURU
(KORAMANGALA)
76191 66663

HYDERABAD
(HIMAYATNAGAR)
79960 66663

IMPHAL WEST
(KISHINATHONG HODAM LEIRAK)
965024 5599

MUMBAI
(OSHIWARA)
987126 5599

SRINAGAR
(BAGHAT)
987123 5599

DELHI
VIJAY NAGAR

2521, 1st FLOOR HUDSON LANE,
NEAR GTB NAGAR METRO STATION,
VIJAY NAGAR CHOWK,
DELHI - 110009

📞 97173 80832 | 📞 88605 88805

BENGALURU
KORAMANGALA

A1, 2nd FLOOR, MAMMOOR PLAZA,
ABOVE AIRTEL OFFICE,
2nd CROSS ROAD,
5th BLOCK KORAMANGALA,
BENGALURU - 560095

📞 76191 66663 | 📞 080-4854 4393

BHOPAL
M.P. NAGAR

PLOT NO. 48, 1st & 2nd FLOOR,
BEHIND SARGAM TALKIES,
ZONE-II M.P. NAGAR, BHOPAL,
MADHYA PRADESH - 462011

📞 75099 75361 | 📞 91798 95361

PATNA
EXHIBITION ROAD

ABOVE TOYOTA SHOWROOM,
CEAT COMPOUND, EXHIBITION ROAD,
NEAR GANDHI MAIDAN, PATNA - 800001

📞 74639 50774 | 📞 0612-2500 961

JAIPUR
TONK ROAD

403-404, 4th FLOOR, APEX TOWER,
LAL KOTHI, TONK ROAD,
JAIPUR - 302015

📞 82908 00441 | 📞 0141-4052 441

MUMBAI
OSHIWARA
OFF CAMPUS CENTRE

OFFICE NO. 42, 2nd FLOOR,
OM HEERA PANNA CO-OPERATIVE SOCIETY,
OPPOSITE CITY INTERNATIONAL SCHOOL,
OSHIWARA, JOGESHWARI (WEST),
MUMBAI - 400102

📞 987126 5599 | 📞 882600 2521

DELHI
RAJENDER NAGAR

56/4 GROUND FLOOR & 32,
BADA BAZAAR ROAD,
OLD RAJENDER NAGAR,
DELHI - 110060

📞 98112 93743 | 📞 011-4517 0303

HYDERABAD
HIMAYATNAGAR

2nd FLOOR, HOUSE NO:- 3-6-111/7&6,
ABOVE PUMA SHOWROOM,
LIBERTY MAIN ROAD, HIMAYATNAGAR,
HYDERABAD - 500029

📞 79960 66663 | 📞 040-4859 0715

INDORE
BHAWAR KUAN SQUARE

111-117, 1st FLOOR, VEDA BUILDING,
BHAWAR KUAN SQUARE, INDORE,
MADHYA PRADESH - 452001

📞 9893 772941 | 📞 0731-4977 441

KOLKATA
SALT LAKE

COLLEGE MORE, PTI BUILDING,
2nd FLOOR, SECTOR - V, SALT LAKE,
KOLKATA WEST BENGAL 700091

📞 90077 09895

IMPHAL WEST
KEISAMTHONG HODAM LEIRAK
OFF CAMPUS CENTRE

2nd FLOOR, KEISAMTHONG HODAM LEIRAK,
THOUDABHABOK MACHIN, IMPHAL WEST,
MANIPUR - 795001

📞 965024 5599

SRINAGAR
BAGHAT
OFF CAMPUS CENTRE

4th FLOOR, CHINAR HEIGHTS,
NEAR CHINAR COLONY, BAGHAT,
SRINAGAR, J&K - 190005

📞 987123 5599

we are a hardworking team, those who are willing to work hard should join us...

Please Note: We do not know any short cut to success.