



drishti

Current Affairs (CONSOLIDATION)

OCTOBER 2023
(PART – I)

Drishti, 641, First Floor, Dr. Mukherjee Nagar, Delhi-110009
Inquiry (English): 8010440440, Inquiry (Hindi): 8750187501
Email: help@groupdrishti.in

Contents

Polity and Governance	1
● Remote Voting for Migrants	1
● Regulation of OTT Platforms.....	3
● The Need for Reliable Code of Police Investigation in India.....	5
● Accredited Social Health Activists	7
● Sutlej-Yamuna Link Canal Dispute	8
● World Habitat Day 2023 and India's Urban Landscape	10
● Krishna Water Dispute.....	12
● Swachh Bharat Mission-Urban	13
● Ethics & Transparency Reforms in Lok Sabha.....	14
● Navigating the Complexities of Publicity Rights	16
● State of Global Internet Freedom in 2023.....	17
● Hate Speech.....	19
● Draft Patent Amendment Rules Undermine Pre-grant Opposition.....	20
● Deaths in India's Prisons.....	22
● Copyright Infringement and Passing Off.....	24
● Social Audit of MGNREGA Scheme	25
● SC Concerned About Delayed Judicial Appointments	27
Economic Scenario	29
● Periodic Labour Force Survey Annual Report 2022-2023.....	29
● World Economic Outlook: IMF	31
● Food Inflation in India.....	32
● World Cotton Day 2023	33
● Monetary Policy Committee Decisions: RBI	34
● 2023 Nobel Prize in Economic Sciences	36
● India's Aviation Industry	37
● Prompt NPA Labeling for Wilful Defaulters	39
● Illicit Trade in India	40
International Relations.....	42
● Israel-Palestine Conflict	42
● Gaza Strip	45
● Comprehensive Nuclear Test Ban Treaty	45
● India Tanzania Relations	47
● Indian Ocean Rim Association	48
● The China-Tibet Issue	49

● India-Maldives Relations	51
● India, Iran and Chabahar Port.....	53
● India and Argentina Signs Social Security Agreement	54
● South China Sea	56

Social Issues58

● Granting Habitat Rights and Implications.....	58
● Global Hunger Index 2023	59
● Scheduled Areas in India	62
● World Mental Health Day.....	63
● Concerns of Caste-Based Discrimination.....	64
● Recognising the Heterogeneity of Northeast India	66
● Caste-Census in Bihar	67

Science & Technology.....70

● Global Innovation Index 2023	71
● Quantum-Technology Backed Green Hydrogen Production	72
● Emergence of Multimodal AIs	74
● Uterus Transplantation.....	75
● Myths Regarding Microbiome Research	76
● World Health Organization's Specs 2030	78
● Nobel Prize in Chemistry 2023	80
● R21/Matrix-M Malaria Vaccine	81
● Nobel Prize in Physics 2023	82
● Nobel Prize in Medicine 2023.....	84
● Digital World of Cookies	86
● Cholera	87
● Measles.....	89

Environment & Ecology90

● Invisible E-Waste	90
● Stratospheric Aerosol Intervention Impact on Global Food Production	91
● Dancing Frogs	93
● Amphibians Threatened by Climate Change	94
● Coral Reef Breakthrough	95
● Coexistence of Tiger and Asiatic Wild Dog	97
● Ganges River Dolphin	97
● Dandeli Forest	99
● Metal Mining Pollution.....	99
● Platypus	101
● Illicit Trade of Tortoises and Hard-Shell Turtles	102
● Methane Emissions from Livestock.....	103
● Review of Maritime Transport 2023: UNCTAD.....	105
● Tiger Deaths Raise Concerns in Nilgiris Biodiversity.....	106

Security	109
• Integration Among Defence Forces	110
Art and Culture.....	112
• Shri Ramalinga Swamy	112
• Allah Baksh and Mewari Style Painting	112
• Toto Language	114
History	115
• Chhatrapati Shivaji Maharaj's Wagh Nakh	115
• Mahatma Gandhi's 154 th Birth Anniversary	116
Geography	120
• Land Use in India	120
• Surge in Human Settlements in Flood-Prone Areas	121
• More Frequent Cyclones in Eastern Arabian Sea	122
• Glacial Lake Outburst Flood in Sikkim	124
Miscellaneous	126
• Nobel Prize 2023	126
• Setu Bandhan Scheme: CRIF.....	127
• Indian Pharmacopoeia Commission Joins PDG	127
• Asian Games 2023	128
• Asia-Pacific Institute for Broadcasting Development	129
• Arunachal Pradesh Gets GI Tags for Three Products.....	130
• Nobel Peace Prize 2023	130
• Doping Practices In India	131
• Nobel Prize in Literature 2023.....	132
• Nagorno-Karabakh Conflict	133
• Project Udbhav	134
• MS Swaminathan.....	134
• Airport Codes.....	135
Rapid Fire Current Affairs	137
• Tamil Author Sivasankari Conferred Saraswati Samman	137
• NASA Finds Carbon and Water in Asteroid Bennu Samples	138
• Passport to Earning (P2E) Initiative	138
• INS Sagardhwani.....	138
• The Phonotaxis Phenomenon.....	138
• Establishment of an Autonomous Body Mera Yuva Bharat Approved.....	139
• Indian Army's Strategic Transition.....	139
• USS Gerald R Ford.....	139
• Loknayak Jayaprakash Narayan Birth Anniversary	139

● Nanaji Deshmukh Birth Anniversary.....	140
● World Sight Day.....	140
● India Launches Operation Ajay for Citizens' Safe Return from Israel	140
● REC Limited Launches 'SUGAM REC' Mobile App for Bond Investors	140
● International Day of the Girl 2023.....	141
● Tele MANAS Seva	141
● The Optical Phenomenon of Rainbows	141
● National Waterways 44 (Ichamati River)	142
● Earthquake Strikes Northwestern Afghanistan	142
● Third Intifada	143
● Universe's Earliest Galaxies	143
● Operation Kachchhap	143
● Automatic 'Status Holder' Certificates Boost Indian Exports	144
● Indian Air Force Day 2023	144
● Sixth Basic Taste	144
● World Dyslexia Day.....	144
● World Cerebral Palsy Day	145
● Sarakka Central Tribal University Approved for Telangana.....	145
● Enzyme Mimetic to Degrade Pollutants in Waste-Water.....	145
● Using Gravity to Solve Power's Problem	145
● 15-Minutes Cities and the Conspiracy Theories	146
● Government Exempts Aviation from IBC's Moratorium.....	146
● Amazon River Dolphins.....	146
● Fish Mint: A Herb with Surprising Health Benefits	146
● Circular Migration.....	147
● New Study Challenges Existence of Lightning on Venus	147
● Military Nursing Service(MNS) celebrates 98 th Raising Day.....	147
● National Turmeric Board	147
● New Fish Species Discovered in Nagaland's Milak River	148
● Armageddon Reedtail.....	148
● SAMPRITI- XI Exercise 2023	148
● World Animal Day.....	149
● Saudi Arabia Cuts Oil Premium for India	149
● Karman Line	149
● Pink Bollworm	149
● Shri Lal Bahadur Shastri.....	149
● IAF Boosts Indigenous Missile Arsenal with Astra-MK1	150

Polity and Governance

Highlights

- Remote Voting for Migrants
- Regulation of OTT Platforms
- The Need for Reliable Code of Police Investigation in India
- Accredited Social Health Activists
- Sutlej-Yamuna Link Canal Dispute
- World Habitat Day 2023 and India's Urban Landscape
- Krishna Water Dispute
- Swachh Bharat Mission-Urban
- Ethics & Transparency Reforms in Lok Sabha
- Navigating the Complexities of Publicity Rights
- State of Global Internet Freedom in 2023
- Hate Speech
- Draft Patent Amendment Rules Undermine Pre-grant Opposition
- Deaths in India's Prisons
- Copyright Infringement and Passing Off
- Social Audit of MGNREGA Scheme
- SC Concerned About Delayed Judicial Appointments

Remote Voting for Migrants

Why in the News?

In late 2022, the **Election Commission of India (ECI)** proposed a **Remote EVM (R-EVM)** to address issues related to domestic migrant voting. The goal was to improve the 67.4% voter turnout in the 2019 general election.

- A survey by Lokniti-CSDS was conducted in September 2023, involving 1,017 migrants living in Delhi's slums, with 63% men and 37% women, aiming to understand whether the proposed **R-EVM system would gain a viable level of trust** among its intended users, setting aside legal and logistical concerns raised by political parties.

What is Remote EVM (R-EVM)?

➤ About:

- The term **"R-EVM"** stands for **"Remote Electronic Voting Machine."** It is a proposed system by the **Election Commission of India (ECI)** aimed at facilitating **voting for domestic migrants** who are unable to vote in their home constituencies due to their current location away from their registered constituencies.
- The R-EVM is designed to address the issue of domestic migrant voting, allowing registered voters who have moved away from their home constituencies to cast their votes remotely.

➤ Key Features:

- **Registration Process:** Voters interested in using the remote voting facility must **register (online or offline)** within a pre-notified timeframe with the concerned Returning Officer (RO) of their home constituency.
- **Remote Polling Station:** A multi-constituency remote polling station will be set up in the area of the **voter's current residence**, allowing for remote voting from that location.
- **Handling Multiple Constituencies:** The RVM can handle **multiple constituencies (up to 72)** from a single remote polling booth, making it efficient for voters from different constituencies to cast their votes at the same location.
- **Voting Process:** When the voter scans their constituency card in the presence of the **Presiding Officer at the remote polling station**, the respective constituency and candidate list will appear on the RVM display.
 - The RVMs have the same security system and voting experience as the existing **EVMs** and use **electronic ballot display** to present candidates and their symbols instead of a fixed paper ballot sheet.
 - Voters can select their preferred candidate on the RVM display. The system will count and store the votes for each candidate in a constituency.

Note:



drishti

➤ Countries Practice Remote Voting:

- There are some countries such as **Estonia, France, Panama, Pakistan, Armenia** etc, which practice remote voting for the citizens living abroad or away from their respective constituencies.

How Significant is the Migrant Vote?

➤ Migration Patterns and Reasons:

- Migrants in Delhi primarily come from neighboring states such as **Uttar Pradesh, Bihar, West Bengal, and Rajasthan**.
- Employment opportunities are the major reason for relocation (58%), followed by family-related reasons (18%) and relocation due to marriage (13%).

➤ Migrant Demographics and Residence Duration:

- A majority of migrants (61%) have lived in Delhi for more than five years, suggesting a significant presence of long-term migrants.
- However, a **considerable number of short-term migrants**, especially from Bihar, come to Delhi for seasonal work.

➤ Voter Registration and Electoral Participation:

- Approximately 53% of migrants have registered as voters in Delhi, while 27% are registered in their home states. Migrants participate more in national and **state-level elections compared to local/panchayat elections**.

➤ Return to Home States for Voting:

- Migrants, particularly from Bihar and Uttar Pradesh, **maintain connections to their home states** by going back to vote, especially in local and state assembly elections.
- The reasons for returning to vote include **exercising their fundamental right to vote (40%)** and using the election season as an **opportunity to visit family (25%)**.

➤ Trust in Remote Voting System:

- **47% of respondents tend to trust the proposed remote voting system**, while 31% express distrust.
- There's a notable gender difference, with **men (50%) showing higher trust compared to women (40%)**. Trust in the system is higher among better-educated individuals.

What are the

Concerns and Challenges Ahead?

➤ Similar Challenges as With the EVMs:

- The Multi-Constituency RVM for migrant voting will have the same security system and voting experience as the EVM. This essentially means that the **challenges with regard to the current EVMs will persist when it comes to the RVMs**.

➤ Amendments to Electoral Laws:

- Remote voting requires amendments to existing laws such as The **Representation of People's Act of 1950 and 1951**, The Conduct of Election Rules, 1961, and The Registration of Electors Rules, 1960 to **accommodate the new voting method**.
- The legal framework needs to **redefine "migrant voter"** and determine whether they retain registration at their original place of residence.

➤ Voter Portability and Residency:

- Determining how to manage voter portability while respecting the legal constructs of "ordinary residence" and "temporary absence" is a social challenge.
- Also, the territorial constituency concept of remote voting and defining remoteness itself that is an outside constituency, outside district or **outside state will need to be dealt with**.

➤ Secrecy of Voting and Administrative Challenges:

- Ensuring the secrecy of voting in remote locations **can be challenging**, as it is important for maintaining the **integrity and confidentiality** of the voting process.
- Implementing methods to identify voters accurately and prevent impersonation is crucial for a **fair and secure remote voting system**.
- Arranging for polling agents and effective supervision of remote voting stations **pose logistical and administrative challenges**.

➤ Technological Challenges:

- Ensuring that voters are familiar with the technology and interfaces used for remote voting is **essential to prevent voter confusion** and errors.
- Establishing efficient mechanisms for accurately counting votes cast through remote voting is a **technological challenge that must be addressed**.

Note:



drishti

Regulation of OTT Platforms

Why in News?

Recently, **Telecom Disputes Settlement Appellate Tribunal (TDSAT)** has ruled that Over The Top (OTT) platforms like **Hotstar** are not in the jurisdiction of the **Telecom Regulatory Authority of India (TRAI)** and are governed by the **Information Technology Rules, 2021**, notified by the **Ministry of Electronics and Information Technology (MeitY)**.

- TDSAT said that OTT platforms are outside the purview of the **TRAI Act, 1997** since they do not require any permission or a license from the central government.
- This order was in response to a petition by the All India Digital Cable Federation (AIDCF) against Star India Pvt Ltd (STAR). AIDCF challenged Star's free streaming of World Cup matches on Hotstar, **claiming it was unfair and against TRAI Regulations**.

What is the Controversy Over OTT Platform Regulation?

- **Conflict Between MoC and MeitY:**
 - **Telecom Regulator TRAI** and **Department of Telecommunications (DoT), Ministry of Communications (MoC)** got in conflict with the **MeitY** over who should regulate **Over-The-Top (OTT) platforms** and there is debate over the nature of the regulatory framework for **Internet-based communications services** in the country.
 - The DoT sought to classify OTT platforms as telecommunications services, and regulate them like telecom operators.
 - The TRAI, separately, has **issued a consultation paper on how to regulate OTT platforms**.
- **Disagreement of IT Ministry with DoT:**
 - The **IT Ministry** believes that under the **Allocation of Business Rules**, Internet-based communications services **are not part of DoT's jurisdiction**.
 - However, in this case, the conversation is centred around OTT communications services like WhatsApp.
- **TRAI's Attempt at Regulating OTT services:**
 - **TRAI first recommended** against creating a specific regulatory framework for OTT communication services like **WhatsApp, Zoom, and Google Meet**.

- Now, it has revisited its stance, and started consultations on how these services can be regulated which got other ministries and departments into conflict.

What are Over-The-Top (OTT) Platforms?

➤ About:

- OTT platforms are **audio and video hosting and streaming services** which started out as content hosting platforms, but soon branched out into the production and release of short movies, feature films, documentaries and web-series themselves.
- These platforms offer **a range of content and use artificial intelligence to suggest to users the content they are likely to view** based on their past viewership on the platform.

➤ Services:

- Most OTT platforms **generally offer some content for free and charge a monthly subscription fee for premium content** which is generally unavailable elsewhere.
- **Premium content** is usually produced and marketed by the OTT platform themselves, in association with established production houses which historically have made feature films.

➤ Examples:

- Netflix, Disney+, Hulu, Amazon Prime Video, Peacock, CuriosityStream, Pluto TV, and so many more.

➤ Laws Regulating OTT Platforms:

- In 2022, the Central Government notified the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021** to regulate OTT platforms.

What are the Information Technology Rules, 2021?

➤ Mandates Social Media to Exercise Greater Diligence:

- Broadly, the IT Rules (2021) mandate social media platforms to exercise greater diligence with respect to the content on their platforms.
- The rules establish **a soft-touch self-regulatory architecture with a Code of Ethics and three-tier grievance redressal mechanism** for OTT platforms.
- Also, every publisher needs to become a member of a self-regulating body. Such a body will have to register with **the Ministry of Information and Broadcasting** and address grievances.

Note:



drishti

➤ **Grievance Redressal Mechanism:**

- The grievance officer of the platform's redressal mechanism is responsible for receiving and resolving complaints of the users.
 - She/he is expected to acknowledge receipt of the complaint within 24 hours and dispose of the same in an appropriate manner within 15 days.
 - Its access and spread by any other means on the platform should also be disabled.

➤ **Privacy Policies:**

- The privacy policies of the social media platforms must ensure that users are educated about not circulating copyrighted material and anything that can be construed as **defamatory, racially or ethnically objectionable, paedophilic**, threatening the unity, integrity, defense, security or sovereignty of India or friendly relations with foreign states, or violative of any contemporary law.

What is Telecom Disputes**Settlement and Appellate Tribunal (TDSAT)?**➤ **Establishment:**

- **Amendment in the TRAI Act, 1997:** The TRAI Act was **amended in 2000** which established **TDSAT** to take over the **adjudicatory and disputes functions** from TRAI.

➤ **Objectives:** TDSAT was set up to adjudicate any dispute between:

- A licensor and a licensee
- Two or more service providers
- A service provider and a group of consumers
- It was also established to hear and dispose of appeals against any direction, decision or order of TRAI.

➤ **Composition:**

- The TDSAT consists of a **Chairperson and two other members**, all to be **appointed by the Central Government**.
- The selection of members is done by the **Central Government in consultation with the Chief Justice of India**.

➤ **Composition:**

- The Tribunal consists of a Chairperson and two Members appointed by the Central Government.

➤ **Eligibility:**

- **Chairperson:** A person shall not be qualified for appointment as the Chairperson unless he/she is or has been, a Judge of the Supreme Court or the Chief Justice of a High Court.
- **Other Members:** He/She must have held the post of Secretary to the Government of India or any equivalent post in the Central/State Government.
- **Term of office:** The Chairperson and the other members of TDSAT shall hold office for a term of maximum **four years or seventy years** (for Chairperson), whichever is earlier.
- In the case of members other than the Chairperson, the maximum age is **sixty-five years**.

➤ **Powers and Jurisdiction of TDSAT:**

- The civil courts do not have jurisdiction to entertain any matter which the TDSAT is empowered to determine.
- An order passed by TDSAT is executable as a decree of civil court, the Tribunal **has all the powers of a civil court**.
- It is not bound by the procedure laid down by the Code of Civil Procedure but guided by the principles of natural justice.
- The Tribunal exercises jurisdiction over Telecom, Broadcasting, IT and Airport tariff
- matters under the TRAI Act, 1997 (as amended), **the Information Technology Act, 2008** and the **Airport Economic Regulatory Authority of India Act, 2008**.
- **In 2004**, the scope of the TRAI Act was expanded to include broadcasting and cable services. Furthermore, following the enactment of the Finance Act in 2017, TDSAT's jurisdiction was **extended to encompass cases that were previously under the jurisdiction of the Cyber Appellate Tribunal**.

Note:

The Need for Reliable Code of Police Investigation in India

Why in News?

In a recent ruling, the **Supreme Court (SC) of India** stressed the necessity for a **"consistent and dependable code of investigation"** to prevent legal loopholes leading to the acquittal (found not guilty of a crime or wrongdoing) of the guilty.

- The observations came after the court acquitted 3 accused in a 2013 kidnap and murder case, citing flaws in the police investigation.

What are the SC's Observations Regarding Police Investigations in India?

- The court highlighted the 2003 report by **Justice V.S. Malimath Committee on Reforms of the Criminal Justice System**, which emphasised that the "successful prosecution of the guilty depends on a **thorough and careful search for truth and collection of evidence** which is both admissible and probative".
- The court referred to a **Law Commission of India report in 2012** that the reasons for a low rate of conviction included **"inept, unscientific investigation by the police and lack of proper coordination between police and prosecution machinery."**

What is the Need for Consistent and Dependable Code of Police Investigation in India?

- To prevent lapses in police probes that lead to the **acquittal of the guilty on technical grounds, as highlighted by the Supreme Court.**
- To improve the **standards of investigation and evidence collection**, which are often inept and unscientific, as noted by the **Law Commission of India.**
- To enhance the **credibility and legitimacy of the criminal justice system**, which is often marred by **corruption, political interference, and human rights violations.**
- To ensure the successful prosecution of the offenders, especially in cases involving serious crimes, such as murder, rape, terrorism, etc.
- To protect the rights and interests of the victims, witnesses, and accused, who often face harassment, intimidation, and coercion during the investigation process.

What are the Malimath Committee's Recommendations for Police Investigation in India?

About:

- The Malimath Committee was established by the Ministry of Home Affairs in 2000, which aimed to **reform India's criminal justice system**. It presented its recommendations in its report titled as the Report of the Committee on Reforms of the Criminal Justice System in 2003.
- The Committee was headed by Justice V.S. Malimath, former **Chief Justice of Karnataka and Kerala High Courts.**
 - The Committee had opined that the existing system **"weighed in favor of the accused and did not adequately focus on justice to the victims of crime."**

Recommendations for Police Investigation:

- The panel recommended borrowing features from the inquisitorial system of investigation, seen in countries like Germany and France, where a **judicial magistrate oversees the investigation.**
- The Committee suggested hiving off the **investigation wing from Law and Order.**
- It also recommended setting up of a **National Security Commission and State Security Commissions.** To improve the quality of investigations.
- It suggested a slew of measures, including the appointment of an Additional. SP in each district to **maintain crime data, organisation of specialised squads** to deal with organised crime, and a team of officers to probe inter-state or transnational crimes, and setting up of a Police Establishment Board to deal with posting, transfers, and so on.
- Police custody is now limited to 15 days. The Committee suggested this be **extended to 30 days** and an **additional time of 90 days be granted for the filing of charge sheets in case of serious crimes.**

Criminal Justice System

- The criminal justice system is the set of laws, processes, and institutions that aim to prevent, detect, prosecute, and punish crimes while ensuring the rights and safety of all people.
- It has four subsystems:
 - Legislature (Parliament)
 - Enforcement (Police)
 - Adjudication (Courts)
 - Corrections (Prisons, Community Facilities)

Note:



drishti

- India's criminal justice systems have evolved under different rulers, during British rule, criminal laws were codified in India, which remain largely unchanged even today. Later the **Indian Penal Code (IPC)** was drafted in 1860, in the wake of the first law commission established in 1834 under the Charter Act of 1833.
- In line, the **Code of Criminal Procedure (CrPC)** provides procedures for administering criminal law in India. It was enacted in 1973 and became effective on 1 April 1974.

Police Reforms in India



CONSTITUTIONAL STATUS

- **Police and Public Order:** State subjects (7th Schedule)



NEED FOR REFORM

- Colonial Law
- Custodial Death
- Lack of Accountability
- Political Interference
- Poor Gender Sensitivity
- Communal/Caste Bias
- No Anti-Torture Law



RELATED DATA

- **Police-People Ratio:** 153 police/100,000 people (Global benchmark: 222 police/100,000 people)
- **Custodial Deaths:** 175 in 2021-2022 (as per MHA)
- **Women's Share:** 10.5% of entire force (India Justice Report 2021)
- **Infrastructure:** 1 in 3 police stations is equipped with CCTV (India Justice Report 2021)



IMPORTANT COMMITTEES/COMMISSION



RELATED INITIATIVES

- **SMART Policing** (pan-India)
- Automated Multimodal Biometric Identification System (**AMBIS**) (Maharashtra)
- **Real Time Visitor Monitoring System** (uses **AI and blockchain**) (Andhra Pradesh)
- **CyberDome** (Tech R&D Centre) (Kerala)



CHALLENGES WITH POLICING

- Low Police-Population Ratio
- Political Superimposition
- Unsatisfactory Police-Public Relations
- Infra Deficit
- Corruption
- Understaffed/Overburdened

WAY FORWARD

- ↑ Police Budget, Resources
- ↑ Recruitment Process
- Implement Measures to Reduce Corruption
- ↑ Skills of Policemen
- Better Representation (Women, Minorities)



Drishti IAS

Note:

Accredited Social Health Activists

Why in News?

Recently, a study published in the *journal Social Science and Medicine* has unveiled the hidden struggles faced by **Accredited Social Health Activists (ASHA)** in India.

- The study exposes a significant research gap, with over **50% of prior articles solely focusing on the health system's perspective**, overlooking ASHA workers' individual struggles. It engaged 59 ASHA workers in six focus groups, allowing them to openly discuss their work-related stress, encompassing workload, gender, caste discrimination, and relationship dynamics.

What are the Key Findings from the Study?

- **Caste Discrimination:**
 - Many ASHAs recounted instances where they were **discriminated against based on their caste**.
 - ASHA workers were not allowed inside the homes of residents belonging to a **higher social caste**. In some instances they were permitted entry but denied a seat on the chair.
- **Gender-Based Disrespect:**
 - ASHA workers experienced **derogatory comments and discriminatory behaviour from community members** when seen in public with men who were not their family members.
 - These incidents also extended to their interactions with male relatives of patients or **counselling male clients** on reproductive health and family planning.
- **Toxic Work Relationships:**
 - ASHA workers described their interactions with supervisors, **auxiliary nurse midwives (ANMs)**, medical officers, and hospital staff as **unhealthy, bordering on toxic**. Instances of insensitivity and lack of support were common.
- **Domestic Conflicts:**
 - Balancing their work and domestic responsibilities often **led to conflicts at home**, sometimes to the extent of **divorce threats**.
 - Many ASHA workers had to grapple with the pressure of fulfilling their familial duties while performing their demanding jobs.

➤ The Need for Support and Coping Mechanisms:

- The study suggests that with appropriate support and coping mechanisms, ASHA workers can better manage their stress.

What is Accredited Social Health Activists (ASHA)?

➤ About:

- The ASHA program was launched in 2005-06 as part of the **National Rural Health Mission**, initially in rural areas.
 - It was later extended to urban settings with the introduction of the **National Urban Health Mission in 2013**.
- The ASHA programme was introduced as a key component of the community process intervention and now it has emerged as the **largest community health worker programme in the world** and is considered a critical contribution to enabling people's participation in health.
 - As of June 2022, there are over 10.52 Lakh ASHAs in all states/UTs (except Goa).

➤ Role of ASHA:

- ASHA is a community-level worker whose role is to function as a **health care facilitator**, and a **service provider and to generate awareness on health issues**.
- Besides delivering key services to maternal child health and family planning, they also render important services under the **National Disease Control Programme**.
- ASHA workers, all women, serve populations of approximately 1,000 in rural areas and 2,000 in urban settings, with room for local adjustments.
 - Generally, there is "1 ASHA per 1000 population". However, this norm can be relaxed in tribal, hilly and desert areas to "1 ASHA per habitation" depending upon the workload.

➤ Selection of ASHA:

- ASHA must primarily be a woman resident of the village married/ widowed/ divorced, preferably in the **age group of 25 to 45 years**.
- She should be a literate woman with due preference in selection to those who are qualified up to 10 standard wherever they are interested and available in good numbers. This may be relaxed only if no suitable person with this qualification is available.

Note:



drishti

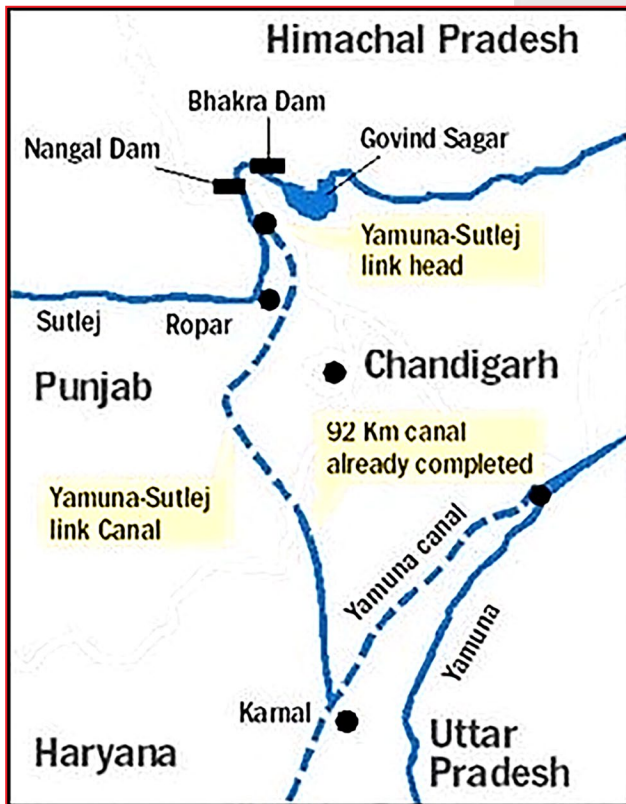
- ASHA workers are **not recognized as the government's "workers"**, but are instead classified as holding an **"honorary/volunteer" position**.

Sutlej-Yamuna Link Canal Dispute

Why in News?

Recently, the Supreme Court has ordered the Punjab Government to complete **Sutlej-Yamuna Link (SYL) canal**, warning the Government to comply with **its orders**.

- The court directed the Union Government to oversee **talks between Punjab and the Haryana governments** on this topic; the Haryana government has completed construction of its half of the canal.
- The Issue stems from a controversial 1981 water-sharing agreement drawn up when Haryana was carved out of Punjab in 1966.



What is the Background?

- **1960:**
 - The dispute can be traced back to the **Indus Water Treaty** between India and Pakistan, allowing the

former 'free and unrestricted use' of Ravi, Beas and Sutlej.

- **1966:**
 - Creation of Haryana from the **old (undivided) Punjab** presented the problem of giving Haryana its share of river waters.
 - For Haryana to get its share of the waters of the Sutlej and its tributary Beas, a canal linking the **Sutlej with the Yamuna was planned (SYL Canal)**.
 - Punjab refused to share waters with Haryana stating it was against the riparian principle which dictates that the water of a river belongs only to the State and country or States and countries through which the river in question flows.
- **1981:**
 - Both states mutually **agreed for the re-allocation of water**.
- **1982:**
 - Construction of the **214-km SYL was launched in Kapoori village, Punjab**.
 - Agitations, protests and assassinations were carried out in protest creating the environment of terrorism in the state and making the issue of national security.
- **1985:**
 - Prime Minister Rajiv Gandhi and then **Akali Dal chief Sant signed an accord agreeing for a new Tribunal** to assess the water.
 - The Eradi Tribunal headed by Supreme Court Judge V Balakrishna Eradi was set up to reassess availability and sharing of water.
 - In 1987, the tribunal recommended an increase in the shares of Punjab and Haryana to 5 MAF and 3.83 MAF, respectively.
- **1996:**
 - Haryana moved the **Supreme Court (SC)** seeking directions to Punjab to complete the work on the SYL.
- **2002 and 2004:**
 - SC directed Punjab to complete the work in its territory.
- **2004:**
 - Punjab Assembly passed the **Punjab Termination of Agreements Act**, terminating its water-sharing agreements and thus jeopardizing the construction of SYL in Punjab.

Note:



drishti

➤ **2016:**

- SC started hearings into a **presidential reference (Article 143)** to decide on the legality of the 2004 Act and declared that Punjab backed out of its promise to share the waters of rivers. Thus, the **act was termed constitutionally invalid.**

➤ **2020:**

- SC directed the **Chief Ministers of both states to negotiate and settle the SYL** canal issue at the highest political level to be mediated by the Centre.
- Punjab has asked for a tribunal for fresh time-bound assessment of the water availability.
 - Punjab holds that there has been no adjudication or scientific assessment of river waters in the state till date.
 - The **availability of Ravi-Beas water has also come down** from the estimated 17.17 MAF in 1981 to 13.38 MAF in 2013. **A fresh tribunal would ascertain all this.**

What is the Argument of Punjab and Haryana?➤ **Punjab:**

- Punjab vehemently **opposes sharing any additional water** with neighboring states. They stress that Punjab lacks surplus water and highlights the reduction in their water allocation over the years.
- Many areas in Punjab may **go dry after 2029** and the state has already **over-exploited its groundwater** for irrigation purposes as it fills granaries of the Centre by growing wheat and paddy worth Rs 70,000 crore every year.
 - Water in about **79% of the state's area is over-exploited** and in such a situation, the government says sharing water with any other state is impossible.

➤ **Haryana:**

- Haryana strongly advocates for the canal's completion, **citing a looming water crisis and asserting that Punjab** has been utilizing Haryana's share of water.
- It says that providing irrigation is tough for the state and there was a problem of drinking water in **southern parts of Haryana**, where groundwater has depleted up to 1,700 feet.
- Haryana has been **citing its contribution to the central food pool** and arguing that it is being **denied its rightful share in the water as assessed by a tribunal.**

What is the Significance of Satluj Yamuna Link Canal?➤ **Facilitating Equitable Water Sharing:**

- The SYL Canal aims to **facilitate the equitable sharing of river waters** between Haryana and Punjab. Once completed, the **canal would enable the distribution of waters from the Ravi and Beas rivers**, which are vital water sources in the region. This is crucial for both states to ensure fair access to water resources and prevent potential conflicts arising from unequal distribution.

➤ **Addressing Historical Water Disputes:**

- It can address long standing water disputes **between Haryana and Punjab**. By providing a defined pathway for water transfer, it aims to settle disagreements related to water allocation and usage, which **have persisted for decades and at times led to legal battles and political tensions.**

➤ **Enhancing Agricultural Productivity:**

- The SYL Canal, by facilitating better water distribution, **can contribute to enhanced agricultural productivity** and sustainability.
- It can support farmers in cultivating their lands effectively, leading to better yields and socio-economic development.

➤ **Socio-Economic Development:**

- The SYL Canal can play a **significant role in promoting overall socio-economic development** in both states.
- Reliable access to water is fundamental for industrial development, urbanization, and overall growth, benefiting various sectors and improving the quality of life for the residents.

What are the Reasons of Water Sharing Issues Among Various States?

- Water sharing issues among various states, **not only in India but in many parts of the world**, are complex and multifaceted, often involving several factors. Some common reasons that contribute to water sharing issues among states:
 - **Geographical Variation in Water Availability:** Different states have varying levels of access to water resources due to their geographical location, topography, and proximity to rivers, lakes, or other sources of water.

Note:



drishti

- Some states may naturally have more abundant water resources, while others may face water scarcity.
- **Climate Change and Global Warming:** Climate change and global warming are altering weather patterns and affecting precipitation levels, leading to changes in **the availability and distribution of water**.
 - Erratic rainfall, prolonged droughts, and changing monsoon patterns can exacerbate water scarcity issues and create conflicts over water sharing.
- **Unequal Distribution of Rivers and Water Sources:** The distribution of rivers and other water sources across states is often unequal, causing disputes over access and utilization.
 - **States located upstream may have control over the source of a river**, while downstream states may face challenges in securing their fair share of water.
- **Construction of Dams and Reservoirs:** The construction of dams and reservoirs for various purposes can significantly alter the flow of rivers and affect water availability downstream.
- **Population Growth and Increased Demand:** Rapid population growth in certain states increases the demand for water for various purposes, including agriculture, industry, and domestic use.
 - This heightened **demand puts pressure on available water resources**, leading to conflicts over allocation and sharing.
- **Political and Inter-State Relations:** Political factors, interstate relations, and differing priorities among states can influence negotiations and agreements related to water sharing.
 - Political considerations, power dynamics, and electoral interests can complicate the resolution of water disputes.

What are the Sustainable Solution for Water Sharing Issues?

- **Water Conservation and Efficiency Measures:**
 - Implementing **water-saving technologies** and promoting water conservation practices in agriculture, industry, and households can significantly reduce water demand.
- **Modernizing Irrigation Systems:**

- Upgrading irrigation infrastructure to more **efficient systems like drip irrigation** can minimize water wastage in agriculture, a sector that consumes the majority of water resources.
- **Real-time Monitoring and Forecasting:**
 - Utilizing technology for **real-time monitoring of reservoir levels**, river flows, and weather patterns can aid in effective water management and timely decision-making, especially during climatic uncertainties.
- **Conflict Resolution Mechanisms:**
 - Establishing efficient conflict resolution mechanisms, **possibly outside the legal framework**, can help states resolve water-sharing disputes more expediently and collaboratively.
 - An atmosphere of cooperation and understanding among neighboring states is necessary to address water disputes amicably.
- **River Basin Ecosystem Restoration:**
 - Focusing on restoring and preserving river basin ecosystems **can enhance the sustainability of water resources**. Healthy ecosystems contribute to the quality and availability of water.
 - Ensuring comprehensive **EIAs (Environmental Impact Assessment)** before initiating any water-related project can **prevent or mitigate adverse effects on water sources and ecosystems**.

World Habitat Day 2023 and India's Urban Landscape

Why in News?

In 2023, **World Habitat Day (WHD)**, was celebrated on **2nd October**. This annual global observance has **come a long way** focusing on the **evolution of urban development, sustainability**, and the role of cities in economic growth.

What is World Habitat Day?

- **About:** The **United Nations** designated the **first Monday of October** of every year as **World Habitat Day** to reflect on the state of our habitats, and on the basic right of all to adequate shelter.
 - The Day is also intended to remind the world that we all have the power and the responsibility to shape the future of **our cities and towns**.

Note:



drishti

- **Origin:** The origin of World Habitat Day can be traced back to **Nairobi, Kenya, in 1986**. The theme of the first celebration was '**Shelter is my Right**,' addressing the acute problem of inadequate shelter in cities.
- **Theme 2023: Resilient urban economies. Cities as drivers of growth and recovery.**
 - 2023 has been a particularly challenging year for Urban Economies. The **global economy growth itself is declining to about 2.5%** and, apart from the initial **Covid-19** crisis in 2020 and the global financial crisis in 2009, this is the **weakest growth experienced since 2001**.

Note: The **UN-Habitat Scroll of Honour Award** was launched by the United Nations Human Settlements Programme in 1989. It is currently the most prestigious human settlements award in the world.

What is the Role of Cities in Economic Recovery?

- **Economic Engines:** Cities serve as economic engines, contributing significantly to a nation's GDP.
 - Urban areas are the productive hubs of economies, **generating more than 75 % of the world's GDP**, attracting businesses, talent, and investments, thereby stimulating economic growth.
- **Employment Opportunities:** Cities **offer diverse job opportunities**, drawing in a skilled and diverse workforce.
 - In times of economic recovery, cities become **critical in reducing unemployment rates**, and improving the overall well-being of their residents.
- **Innovation and Technology Hubs:** Many cities are epicenters of **innovation and technology**.
 - They house **research centers, universities, and tech companies** that drive technological advancements, further fostering economic recovery through innovation-led growth.
- **Infrastructure Development:** Cities often receive substantial infrastructure investments during economic recovery phases.
 - These investments in **transportation, utilities, and public services** not only boost immediate job creation but also enhance long-term productivity and quality of life.
- **Cultural and Creative Industries:** Cultural and creative industries thrive in cities, contributing to the local economy through **tourism, arts, entertainment, and design**.

- These sectors not only generate revenue but also **make cities attractive and competitive on a global scale**.

What is the Current Urban Landscape in India?

- **Status:**
 - India is one of the fastest growing economies in the world, and its growth is propelled by its cities.
 - Cities contribute **66% to the national GDP**, a number expected to rise to **80% by 2050**.
- **Current Major Challenges:**
 - **Overpopulation and Rapid Urbanization:**
 - India is the world's most populous country, with a significant portion of the population **migrating from rural to urban areas**.
 - This rapid **urbanization** exerts immense pressure on urban resources and infrastructure.
 - **Inadequate Infrastructure:**
 - **Housing:** The shortage of **affordable housing** results in the growth of slums and informal settlements, where living conditions are often substandard.
 - **Water Supply and Sanitation:** Many Indian cities struggle to provide **clean and safe drinking water** and proper sanitation facilities to their residents.
 - This leads to health issues and the contamination of water bodies.
 - **Transportation:** **Congested roads** and lack of efficient public transportation systems contribute to traffic **congestion, pollution, and increased travel time**.
 - **Environmental Degradation:**
 - **Air Pollution:** Many Indian cities suffer from **high levels of air pollution**, leading to respiratory diseases and reducing the quality of life for residents.
 - **Water Pollution:** **Industrial discharges, sewage, and improper waste disposal** contaminate **water bodies**, affecting public health and the environment.
 - **Inequality and Social Disparities:**
 - **Economic Disparities:** Urban areas in India witness **stark income inequality**, with a growing gap between the rich and poor.

Note:

- **Access to Services:** Many urban residents **lack access to basic services like healthcare and education**, leading to disparities in well-being and quality of life.
- **Inadequate Waste Management:** Urban India alone generates nearly **0.15 million tonnes per day of Municipal Solid Waste**.
 - According to GOI, almost **78% of the sewage generated in India remains untreated** and is disposed of in rivers, lakes, or sea.
 - The volume of waste is projected to reach **165 million tonnes by 2031 and 436 million tonnes by 2050**, if existing policies, programmes and management strategies are not adequately addressed.
- **Water Scarcity:** **Urbanization and industrialization** are leading to the over-extraction of groundwater, causing water scarcity in many cities, especially during dry seasons.
- **Climate Change Vulnerability:** Urban areas are particularly susceptible to the adverse effects of climate change, such as **extreme temperatures, flooding, and intensified heat islands**, which can exacerbate environmental and health issues.

What are Government Initiatives Related to Urban Development?

- **Smart Cities**
- **AMRUT Mission**
- **Swachh Bharat Mission-Urban**
- **HRIDAY**
- **Pradhan Mantri Awas Yojana-Urban**
- **Aspirational district Programme**

Krishna Water Dispute

Why in News?

The Union Cabinet has approved the issue of further **Terms of Reference (ToR)** to the existing **Krishna Water Disputes Tribunal-II (KWDT-II)** under the **ISRWD (Inter State River Water Disputes) Act, 1956** for its **adjudication between the States of Telangana and Andhra Pradesh (AP)**.

What is the Krishna Water Disputes Tribunal-II (KWDT-II)?

- Krishna Water Disputes Tribunal-II was constituted by the Centre in April 2004 under Section 3 of the ISRWD

Act, 1956 to **adjudicate and resolve water-sharing disputes** related to the Krishna River.

- It was constituted to address the **allocation of Krishna River waters among the riparian states** of Maharashtra, Karnataka, and Andhra Pradesh.
- KWDT-II **made recommendations and allocations of Krishna River waters** based on the availability of water, the demands of the states, and other relevant factors. It provided specific quantities of water to each state, outlining the share they were entitled to receive.

What is Krishna Water Dispute?

- **About:**
 - The Krishna Water Dispute **centers on the equitable sharing of Krishna River** waters among the states of Maharashtra, Karnataka, Telangana, and Andhra Pradesh.
 - The Krishna River flows through these states, and disputes arise due to differing needs, historical disagreements, and changes in the political and administrative landscape.
- **Background:**
 - **Point of Contention:** The Srisailem reservoir, situated on the Krishna River in Andhra Pradesh, is a **major point of contention**. Andhra Pradesh contested Telangana's use of Srisailem reservoir water for power generation.
 - **Dispute Background:** Disputes trace back to the formation of Andhra Pradesh in 1956 and were addressed through the Krishna Water Disputes Tribunal (KWDT) in 1973. A second KWDT was set up in 2004 to reallocate Krishna water.
 - **KWDT Allocation (2010):** The second KWDT delivered its report in 2010, which made allocations of the Krishna water at **65% dependability and for surplus flows as follows**:
 - 81 TMC for Maharashtra, 177 TMC for Karnataka, and 190 TMC for Andhra Pradesh.
 - **Andhra Pradesh's Challenges:** In 2011, Andhra Pradesh challenged the KWDT's allocation through legal proceedings, including a Special Leave Petition before the Supreme Court.
 - In 2013, the **KWDT issued a 'further report'**, which was again **challenged by Andhra Pradesh** in the **Supreme Court (SC)** in 2014.
 - After the creation of Telangana, in 2014, Andhra Pradesh demanded a review of Krishna water allocations among four states.

Note:



drashti

- Maharashtra and Karnataka argued that **Telangana was created following the bifurcation of Andhra Pradesh**. Therefore, allocation of water should be from Andhra Pradesh's share which was approved by the tribunal.
- **Constitutional Framework:**
 - **Article 262 of the Indian Constitution** provides for the adjudication of inter-state water disputes, allowing Parliament to create laws for this purpose.
 - The **Inter-State Water Disputes Act (1956)** empowers the Central government to establish

ad hoc tribunals for resolving water disputes between states.

- **Current Status:**
 - KWDT will provide new terms of reference under which the tribunal will divide the water of the Krishna River among both states, Andhra Pradesh and Telangana, in the future.
 - It will allocate **water on a project-wise basis for the proposed projects** in both states that are intended for developmental or future purposes.

Krishna River

- **Source:** It originates near Mahabaleshwar (Satara) in Maharashtra. It is the second biggest river in peninsular India after the Godavari River.
- **Drainage:** It runs from four states Maharashtra (303 km), North Karnataka (480 km) and the rest of its 1300 km journey in Telangana and Andhra Pradesh before it empties into the Bay of Bengal.
- **Tributaries:**
 - **Right Bank Tributaries:** The Ghatprabha, the Malprabha and the Tungabhadra.
 - **Left Bank Tributaries:** The Bhima, the Musi and the Munneru.
- **Hydropower Development:**
 - The major Hydro Power stations in the basin are Koyna, Tungabhadra, SriSailam, Nagarjuna Sagar, Almatti, Naryanpur, Bhadra.
- **Mythology:**
 - Krishna is a **mighty east flowing river of peninsular India**. It is the same river as Krsnavena in the Puranas or Krsnaveni in the Yoginitantra.
 - It is also known as **Kanhapenna in Jatakas and Kanhapena** in the Hathigumpha inscription of Kharavela.



Swachh Bharat Mission-Urban

Why in News?

As a prelude to **Swachh Bharat Diwas**, the annual Swachhata Hi Seva (SHS) fortnight was also organized by Swachh Bharat Mission-Urban and Gramin between 15th Sept to 2nd Oct 2023.

- The fortnight aims to mobilize the participation of crores of citizens across the country via various activities such as Indian Swachhata League 2.0, SafaiMitra Suraksha Shivir and mass cleanliness drives.

What is Swachh Bharat Mission-Urban?

- **About:**
 - **Swachh Bharat Mission-Urban (SBM-U)** was launched on 2nd October, 2014, by the **Ministry of Housing and Urban Affairs** as a national campaign to promote cleanliness, sanitation, and proper waste management in urban areas.
 - It aimed to make cities and towns across India clean and free from open defecation.
- **Swachh Bharat Mission-Urban 1.0:**
 - The first phase of SBM-U focused on achieving the target of making urban India ODF by providing access to toilets and promoting behavioral change.

Note:



drashti

- SBM-U 1.0 was successful in achieving the target and 100% of urban India was declared ODF.
- **Swachh Bharat Mission-Urban 2.0 (2021-2026):**
 - SBM-U 2.0, announced in Budget 2021-22, is the continuation of SBM-U first phase.
 - The second phase of SBM-U aimed to go beyond ODF to ODF+, and ODF++, and focus on making urban India garbage-free.
 - It emphasized sustainable sanitation practices, waste management, and the promotion of a circular economy.

What are the Achievements of Swachh Bharat Mission?

- 12 crore toilets have been built in the last nine years, liberating the country from the **scourge of open defecation** and **75% of the total villages** have achieved the **Open Defecation Free (ODF) Plus status**.
- Urban India has become **Open Defecation Free (ODF)**, with all 4,715 **Urban Local Bodies (ULBs)** completely ODF.
- 3,547 ULBs are ODF+ with functional and hygienic community and public toilets, and 1,191 ULBs are ODF++ with complete faecal sludge management.
- 14 cities are certified Water+, which entails treatment of wastewater and its optimum reuse.

What are the Shortcomings of SBM?

- **Decline in Regular Toilet Use:**
 - Despite the initial success in increasing toilet access, the paper highlights a decline in regular toilet usage in rural India from 2018-19 onwards, raising concerns about the sustainability of the program.
- **Disproportionate Impact on Marginalized Groups:**
 - The largest drop in toilet usage was observed among Scheduled Caste (SC) and Scheduled Tribe (ST) socio-economic groups, indicating that the program's benefits have not been equally sustained across all segments of society.
- **Concerns about Sustainability:**
 - The decline in toilet usage in recent years raises questions about the sustainability of the program's achievements, casting doubt on the long-term impact and behavioral change intended by SBM.
- **Spatial Variation in Toilet Use:**

- At the national level, regular use of any toilet (improved or unimproved) increased from 46% to 75% on average in rural areas during 2015-16 and 2019-21.
 - This increase was across all population and socio-economic sub-groups, and especially pronounced for the poor and socially disadvantaged groups
- But even as the regular use of any toilet for SC and ST people saw a jump of 51 and 58% points respectively between 2015-16 and 2018-19 - reaching almost the same levels as those in the General Category, gains were reversing since then.

Challenges in Richer States:

- Despite progress, wealthier states showed **mixed performance and smaller gains in toilet use compared** to economically poorer states, highlighting the need for tailored strategies in different socio-economic contexts.
- States like Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, and Gujarat showed smaller progress in regular toilet use compared to economically disadvantaged states, **indicating that the program did not have the same impact across all states**.

What is Open Defecation Free Status?

- **ODF:** An area can be notified or declared as ODF if at any point of the day, not even a single person is found defecating in the open.
- **ODF+:** This status is given if at any point of the day, not a single person is found defecating and/or urinating in the open, and all community and public toilets are functional and well maintained.
- **ODF++:** This status is given if the area is already ODF+ and the faecal sludge/septage and sewage are safely managed and treated, with no discharging or dumping of untreated faecal sludge and sewage into the open drains, water bodies or areas.

Ethics & Transparency Reforms in Lok Sabha

Why in News?

Two crucial reforms are pending within the Lok Sabha, aiming at fostering **Ethical Conduct** and transparency among its members. These are the formulation of a **Code of Conduct for members of Lok Sabha (LS)** and a **Declaration of Members' Business Interests**.

Note:



drishti

What is the Code of Conduct?

- **Background:**
 - A code for **Union ministers** was adopted, and state governments were advised to adopt it as well.
 - Now the Code of Conduct is applicable to **both Union and State ministers**.
 - In the case of MPs, the first step was the **constitution of Parliamentary Standing Committees on Ethics** in both the Houses.
 - The Committee in Rajya Sabha was inaugurated in **1997 to oversee the moral and ethical conduct** of the Members and to examine the cases referred to it with reference to ethical and other misconduct of Members.
 - The first Ethics Committee in **Lok Sabha** was **constituted in the year 2000** and since then, the issue of a **Code of Conduct** has been periodically discussed and recommended.
- **Delay and Current Status:**
 - The Ethics Committee of Lok Sabha has been deliberating on the Code of Conduct for over eight years, reflecting a **prolonged delay in addressing** this vital issue.
 - The matter was first brought up in **December 2014 when the Lok Sabha Ethics Committee** submitted a report with proposed amendments to the Rules of Procedure and Conduct of Business in Lok Sabha.
 - The Code of Conduct has **long been applicable to members** of Rajya Sabha.
- **The Need for a Code of Conduct:**
 - The Code's purpose is to guide and ensure appropriate behavior and conduct among Lok Sabha MPs, enhancing the integrity of parliamentary proceedings.
 - The historical context dating back almost a century underscores the long-standing concerns about conflicts of interest and the need for regulatory frameworks.
 - The significance of a **Code of Conduct is highlighted** in promoting good governance, maintaining transparency, and ensuring MPs' adherence to ethical standards.

What is the Difference between Code of Ethics and Code of Conduct?

- **Code of Ethics is an aspirational document**, issued by the board of directors containing core ethical values, principles, and ideals of the organization.
 - Code of Conduct is a **directional document** containing specific practices and behavior that are followed or restricted under the organization.
- Code of Conduct originated **from the code of ethics**, and it converts the rules into specific guidelines that must be followed by the members of the organization.
 - Therefore, the latter **concept is wider than the former**.
- **Code of Ethics regulates the judgment of the organization** while a code of conduct regulates the actions.
- **Code of Ethics focuses on values or principles**. On the other hand, the Code of Conduct is focused on compliance and rules.
- Code of Ethics is publicly available, i.e. anyone can access it. Conversely, the Code of Conduct is addressed to employees only.

What is the Declaration of Members' Business Interests?

- **About:**
 - It is a practice already **in place for Rajya Sabha members**.
 - The purpose is to identify and disclose any personal, pecuniary, or direct interests that could potentially create conflicts of interest, fostering transparency and accountability.
- **Long Running Saga:**
 - Concerns about **conflicts of interest for Members of Parliament (MPs)** were raised as far back as 1925.
 - In 2012, the **Lok Sabha Ethics Committee suggested** adopting the Rajya Sabha's practice of maintaining a 'Register of Members' Interests.'
 - This register provides information about MPs' financial and personal interests.
 - **Rule 293 in the Rajya Sabha outlines** the requirement for this register, which can be accessed by MPs and even ordinary citizens through the **RTI (Right To Information) Act**.

Note:



drishti

- The Lok Sabha Secretariat provided an extract, Paragraph 52A, from a publication of Parliament titled 'Directions by the Speaker Lok Sabha'.
- This paragraph applies to members of **Parliamentary Committees, not to all MPs.**
- The extract ("Personal, pecuniary or direct interest of member") says: "
 - Where a member of a Committee has a personal, pecuniary or direct interest in any matter **which is to be considered by the Committee**, such member shall state one's own interest therein to the Speaker through the Chairperson of the Committee.
 - After considering the matter, the Speaker shall give a decision which shall be final."

What are the Recommendations by Second ARC?

- In addition to the existing Code of Conduct for Ministers, there should be a **Code of Ethics to provide guidance on how Ministers should uphold** the highest standards of constitutional and ethical conduct in the performance of their duties.
- Dedicated units **should be set up in the offices of the Prime Minister (PM)** and the Chief Ministers (CM) to monitor the observance of the Code of Ethics and the Code of Conduct. The unit should also be empowered to receive public complaints regarding violation of the Code of Conduct.
- The PM or the CM should **be duty bound to ensure the observance of the Code of Ethics** and the Code of Conduct by Ministers.
- An annual report with regard to the **observance of these Codes should be submitted** to the appropriate legislature. This report should include specific cases of violations, if any, and the action taken thereon.
- The Code of Ethics should **inter alia include broad principles of the Minister-civil servant relationship** and the Code of Conduct.
- The Code of Ethics, the Code of Conduct and the annual report should be put in the public domain.

Navigating the Complexities of Publicity Rights

Why in News?

Recently, the **Delhi High Court** has issued an interim order, preventing 16 entities from misusing a Bollywood

actor's persona, including his **name, image, voice, and likeness, for unauthorized commercial gain.**

- This case marks the first instance in India where **publicity rights are being examined** to address concerns related to image distortion and circulation.

What are Publicity Rights?

- **About:**
 - Publicity rights are a legal concept that protects an individual's right to control and profit from the **commercial use of their name, image, likeness, or other aspects of their identity.**
 - These rights are designed to **prevent others from using a person's identity for commercial purposes** without their permission.
 - However, currently there is **no statutory provision in India** prescribing the duration of the right of publicity.
- **Arguments in Favour:**
 - **Protection of Personal Identity:** Publicity rights are essential for protecting an individual's personal identity and ensuring that **they have control over how their name and likeness are used for commercial purposes.**
 - It is significant in the era of AI-generated **deep fakes and synthetic media.** These technologies can create **highly convincing videos and images that make it appear as though a celebrity endorses or participates** in activities they have not.
 - This protection helps **individuals maintain their dignity and privacy.**
 - **Economic Incentive:** Publicity rights provide a **financial incentive for individuals**, particularly celebrities, to invest in their public persona and fame.
 - This can encourage people to pursue careers in fields like entertainment, sports, and endorsements, benefiting the economy as a whole.
 - **Clarity and Accountability:** Publicity rights create a clear framework for determining **when the unauthorized use of a person's identity constitutes a violation.** This legal clarity is essential for resolving disputes and ensuring accountability.

Note:



drishti

- **Protection of Consumers:** Publicity rights can **protect consumers from deceptive practices** by ensuring that they are not misled into believing that a product or service is endorsed by a celebrity when it is not.
 - This helps maintain trust in advertising and endorsements.
- **Arguments Against Publicity Rights:**
 - **Freedom of Expression:** Publicity rights can sometimes be seen as **limiting freedom of expression and speech**. They may restrict the use of an individual's image or likeness in various creative, artistic, or critical works, even when there is no intent to mislead or harm.
 - **Overcompensation of Celebrities:** Critics argue that many celebrities are already **highly compensated for their work, endorsements, and appearances**.
 - Extending publicity rights can be seen as a form of double-dipping or providing excessive financial benefits to already wealthy individuals.
 - **Complexity and Lack of Clarity:** The application of publicity rights can be complex, leading to **legal disputes and uncertainty**.
 - It can be challenging to determine when the use of a person's identity crosses the line into a violation, potentially stifling legitimate uses.
 - Also, in India, **publicity rights are transferable, often to corporations**. Expanding these rights excessively could grant celebrities and corporations undue control over public imagery and cultural products.

State of Global Internet Freedom in 2023

Why in News?

According to a report by Freedom House (a Washington DC-based non-profit) on the state of **Global Internet Freedom in 2023**, there is a concerning trend of **declining Internet freedom for the 13th consecutive year**, with 29 countries experiencing a deterioration in the environment for human rights online.

- The report covers **developments between June 2022 and May 2023**. It evaluates Internet freedom in 70 countries, accounting for 88% of the world's Internet users

- The report evaluates countries based on **five censorship methods**, including Internet connectivity restrictions, blocks on social media platforms, website blocks, VPN blocks, and forced removal of content.

What are the Key Highlights of the Report?

- **Role of AI in Digital Repression:**
 - **Artificial intelligence (AI)** plays a critical role in digital repression. AI-based tools are increasingly **sophisticated and accessible**, being utilized to spread disinformation in at least **16 countries**.
 - Additionally, AI enhances content censorship efficiency in 22 countries by automating the removal of content deemed unacceptable for political, social, or religious reasons.
- **Legal Repercussions and Violence for Online Expression:**
 - A record high of 55 out of the 70 assessed countries witnessed legal repercussions for online expression.
 - Moreover, in 41 countries, individuals **were assaulted or killed due to their online statements**.
- **Country-Specific Findings:**
 - Iran witnessed a **sharp rise in digital repression** due to Internet shutdowns, blocking of social media platforms, and increased surveillance to suppress anti-government protests.
 - China **remained the worst country for Internet freedom** for the ninth consecutive year, followed by Myanmar as the second most repressive country for online freedom.
- **India's AI-Enabled Digital Repression:**
 - India has incorporated **AI-based censorship into its legal framework**, impacting freedom of expression and criticism of the ruling party.
 - The report warns about adverse repercussions for Indian democracy due to the **expanding censorship regime**, creating an uneven playing field as the country prepares for general elections in 2024.

What is Censorship?

- Censorship is the **act of suppressing or controlling information**, ideas, or expression that are deemed objectionable, harmful, sensitive, or threatening to a particular group, organization, or government.

Note:



drishti

- It involves restricting or prohibiting the dissemination, publication, or access to certain content, either by individuals, institutions, or authorities.
- In India, **copyright laws** take everything that comes in public domain – advertisements, theatre, films, series, music, speeches, reports, debates, magazines, newspapers, plays, any form of art, dance, literature, written, documentary or oral works – in their sweep.

How does Censorship Work in India?

- **Code of Criminal Procedure (Cr.P.C):**
 - Section 95 of the Cr.P.C allows forfeiture of certain content/ publications.
 - It is punishable by the State **Government via an official notification under this section if any newspaper**, book, or document, wherever printed, contains any matter that the State Government considers harmful to the state.
- **CBFC:**
 - The **Central Bureau of Film Certification (CBFC)** is a statutory body operational under the Cinematograph Act, 1952.
 - It regulates the content of films that are brought into the public domain.
 - The CBFC follows a system of prior certification of films and the broadcasters are bound by the guidelines under the 'Programme Code and Advertisement Code' to follow the certification provided.
- **Press Council of India:**
 - It is a statutory and quasi-judicial body **which was established under the Press Council Act, 1978.**
 - It acts as the self-regulatory body for the press and regulates what comes to the media domain.
 - This body emphasizes the need for media persons and journalists to self-regulate, and acts as a watchdog for media content at large to assess if it goes against press ethics and the public interest.
- **The Cable Television Networks Act, 1995:**
 - This act also filters the kind of content that can be broadcasted.
 - For keeping a track over cable operators, the act mandates a compulsory registration for cable operators.
- **Social Media Platforms and the New IT Rules, 2021:**
 - Given the significant rate of growth of social media, its censorship has been a growing point of concern in India as till recent times, it was **not under the direct supervision of any government authority** or direct and specific regulation thus far.
 - At present, **the Information and Technology Act, 2000** regulates social media usage, and Sections 67A, 67B, 67C and 69A, in particular, include the specific regulatory clauses.
- **IT (Intermediary Guidelines & Digital Media Ethics Code) Rules, 2021:**
 - These were preceded by the amendments to the 'Allocation of Business Rules' under the IT Act, 2000 to **bring films, audio-visual programmes, news, current affairs content**, and digital and online media including **OTT (Over The Top)** platforms like Amazon, Netflix, and Hotstar under the purview of Ministry of Information & Broadcasting (I&B), Government of India.

What are the Advantages and Limitations of Censorship?

- **Advantages:**
 - **Censorship Prevents Disharmony:** Censorship prevents disharmony in society by **prevention of disclosure of objectionable content** that can lead to communal discord.
 - **Preserves the Security of the State:** The censorship of the internet can help to protect social stability and national safety.
 - Since internet censorship can help to curb the large number of illegal activities and internet crimes, it is good for the stability of society.
 - Some illegal organizations or people may release black information which will disturb the national economy and polity.
 - **Prohibits the Spread of False Beliefs or Rumours:** Government can use the Censorship for prohibiting the spread of false **beliefs or rumours and can also be used to curb access to Harmful Activities** by preventing their public display and others.
 - The censorship of internet can filter the inappropriate information online and protect children from disturbing websites, such as, child pornography, sexual violence and detailed instructions in crime or drug use.

Note:



drishti

➤ Limitations:

- **Tool for Moral Policing:** The practical application of the censorship legislation **can end up becoming a tool of moral policing** that controls other people's lives rather than concerning itself with larger public issues.
 - The wide-ranging powers given to the regulatory body under the new rules, which is composed of bureaucrats, also runs the risk of discretionary political control.
- **Against the Constitutional Mandate of Free Speech:** The circumferences of morality, taste, and distaste differ widely in India.
 - Hence, this level of intense censorship is far off-course from the constitutional mandate of free speech and expression as guaranteed to all Indian citizens (subject to certain reasonable restrictions).

Hate Speech

Why in News?

A recent analysis by the **Association for Democratic Reforms (ADR)** and **National Election Watch (NEW)** reveals that a concerning number of lawmakers in India have **hate speech** cases against them.

- A total of 107 **Members of Parliament (MPs)** and **Members of Legislative Assembly (MLAs)** have hate speech cases registered against them.
- Such findings highlight the need for **ethical conduct** among those in positions of power.

Note:

- NEW is a nationwide campaign since 2002 comprising more than 1200 **Non-governmental Organizations (NGOs)** and other citizen-led organizations working together on electoral reforms, improving democracy and governance in India.
- ADR is an Indian NGO established in 1999 situated in New Delhi.

What is Hate Speech?

➤ About:

- In the **267th Report** of the **Law Commission of India**, hate speech is stated as **an incitement to hatred** primarily against a group of persons defined in

terms of race, ethnicity, gender, sexual orientation, religious belief and the like.

- The **context of speech is crucial** in determining whether it constitutes hate speech or not.
- It can cause harm to the targeted individuals and groups, as well as to the society at large, by inciting hatred, violence, discrimination, and intolerance.
- **Legal Position of Hate Speech in India:**
 - **Freedom of Speech and Hate Speech:**
 - Article 19(1)(a) of the Indian Constitution guarantees **freedom of speech and expression as a fundamental right** for all citizens.
 - Article 19(2) imposes **reasonable restrictions on this right**, balancing its use and misuse.
 - Restrictions are allowed in the interests of sovereignty, integrity, security, friendly relations with foreign states, public order, dignity, morality, contempt of court, defamation, or instigation of an offence.
 - **Indian Penal Code:**
 - **Sections 153A and 153B of the IPC:**
 - Punish acts that cause enmity and hatred between groups.
 - **Section 295A of the IPC:**
 - Deals with punishing acts which deliberately or with malicious intention outrage the **religious feelings of a class of persons**.
 - **Sections 505(1) and 505(2):**
 - Make the **publication and circulation of content** that may cause ill will or hatred between different groups an offence.
 - **Representation of People's Act (RPA), 1951:**
 - **Section 8 of the RPA, 1951:**
 - Prevents a person convicted of the **illegal use of the freedom of speech from contesting an election**.
 - **Sections 123(3A) and 125 of the RPA:**
 - Bars the promotion of feelings of enmity or hatred between different classes of citizens of India on the grounds of race, religion, community, caste, or language in reference to elections and include it under corrupt electoral practices.
 - **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989:**

Note:

- Prevents **hate speech targeting Scheduled Caste or a Scheduled Tribe** in any place within public view.
- **Protection of Civil Rights Act, 1955:**
 - Penalises incitement to, and encouragement of untouchability through words, either spoken or written, or by signs or by visible representations or otherwise.

What are Judicial

Cases Related to Hate Speech?

- **Shaheen Abdulla v. Union of India and Ors, 2022:**
 - The **Supreme Court (SC) of India** observed that there cannot be **fraternity** unless different religious communities are amenable to live in harmony.
 - The SC has expressed concern over the growing incidents of hate speeches in the country and has directed the governments and police authorities to take **suo motu action** in such cases without waiting for the lodging of formal complaints.
- **Pravasi Bhalai Sangathan v. Union of India, 2014:**
 - The SC did not penalize hate speech as it does **not exist in any of the pre-existing legislation in India**. Instead, the Supreme Court requested the **Law Commission to address this issue** in order to avoid its stepping into the forum of **judicial overreach**.
- **Shreya Singhal v. Union of India, 2015:**
 - Issues were raised about **Section 66A of the Information Technology Act, 2000** relating to the fundamental right of free speech and expression guaranteed by **Article 19(1) (a) of the Constitution**, where the Court differentiated between discussion, advocacy, and incitement and held that the first two were the essence of Article 19(1).

How can the Issues of

Hate Speech be Effectively Addressed?

- Promote education and awareness about the **consequences of hate speech**, emphasizing its harmful effects on individuals and society.
- Strengthen existing laws or enact new ones specifically targeting hate speech, complemented by other measures, such as **media literacy, dialogue, counter-speech, self-regulation, and civil society engagement**.
 - These measures can help prevent hate speech from spreading, challenge its narratives, promote alternative voices, and foster a **culture of tolerance and respect**.

- Establish and **enforce codes of conduct for legislators**, holding lawmakers and political parties **accountable for hate speech**, and promoting **media ethics** to discourage its dissemination.

Draft Patent Amendment Rules Undermine Pre-grant Opposition

Why in News?

Recent **draft patent amendment rules** in India proposed by the **Department for Promotion of Industry and Internal Trade (DPIIT)** have raised concerns over their potential impact on **affordable drugs and vaccines**. These rules may hinder **pre-grant opposition**, a vital **safeguard against unwarranted patent extensions**, posing challenges to public health.

What are the Draft Patent Amendment Rules?

➤ Draft Patent Amendment Rules

- **About:**
 - The draft patent amendment rules are a set of proposed modifications to the **existing patent rules in India**, which regulate the procedures and **fees for filing, examining, granting, and opposing patents**.
- **Main Features:**
 - The introduction of **variable fees for filing pre-grant oppositions**, which could range from Rs. 1,500 to often exceeding Rs. 40,000, depending on the **category and number of applicants**, has been implemented.
 - The provision of **granting the controller of patents the power to determine the maintainability** of representation by individuals or civil society organizations seeking to file pre-grant oppositions.
 - The increase of the official fee for filing post-grant oppositions, which will be equal to the aggregate patent filing cost incurred by the applicant.
- **Concerns:**
 - **Restricting Access to Affordable Drugs:**
 - The proposed rules may limit **access to affordable generic drugs**, by making it harder to challenge patents.

Note:



drishti

- The introduction of variable fees for filing pre-grant oppositions could impose a significant **financial burden on civil society organizations and patient groups**.
- **Controller's Discretion:**
 - Under the current Patents Act, 1970 **any person can file a pre-grant opposition**, providing a **democratic approach to challenging patents**.
 - However, the draft rules propose to give the **controller the authority to decide the maintainability of those filing pre-grant oppositions**. This shift in power has raised concerns about **potential biases and challenges for those seeking to oppose patents**.
- **Impact on Public Health Safeguards:**
 - Pre-grant opposition serves as a crucial public health safeguard against practices like **patent evergreening** and the granting of unwarranted monopolies.
 - Evergreening of patents is a strategy to extend the term of a patent by obtaining **new patents before the original one expires**. In India, **Section 3(d) of the Patent Act 1970** (amended in 2005) prohibits granting patents for **new forms of known substances unless they significantly differ in efficacy**. Therefore, **evergreening is not allowed under Indian patent law**.
 - It ensures continued accessibility to quality-assured and affordable generic medicines.
- **Pharma Lobbying:**
 - Concerns have been raised that the **rules favour pharmaceutical companies** and may undermine India's unique provision of the pre-grant opposition.
- **Global Impact:**
 - The proposed changes could disproportionately impact patients in **India and the global South**, who rely heavily on India's production of affordable generic drugs and vaccines.
 - A threat to access to essential medicines may put patients at risk and affect the generic drug industry.

Notable Instances

of Successful Pre-grant Oppositions:

- Pre-grant oppositions by patient groups and civil society organizations have frequently led to the rejection of patent extensions sought by big pharmaceutical companies based on weak claims of **"novel invention."**
- **Tenofovir Disoproxil Fumarate (TDF):**
 - In 2006, patient groups contested **Sahara's TDF patent due to the drug's use of a known compound**.
- **Nevirapine:**
 - **Boehringer Ingelheim's** pediatric Nevirapine patent was denied in 2008 following a pre-grant opposition, as it failed to **show a significant improvement in efficacy**.
- **Glivec:**
 - Novartis' cancer drug Glivec faced rejection by the **Supreme Court of India** in 2013, as it was considered a modified version of **an existing drug, Imatinib**.

Body blow to pre-grant opposition

The draft patent amendment rules give the controller the power to determine the maintainability of representation of those filing pre-grant oppositions



Worrying: The draft amendment rules create needless hurdles. SPECIAL ARRANGEMENT

■ Currently, the Patents Act explicitly permits "any person" to file a pre-grant opposition without the discretion of the Controller. But as per the draft rules, the Controller will decide maintainability

■ Big pharma had questioned the maintainability of petitioners opposing patents, leading to delays. The same can happen with pre-grant opposition

■ The present amendments present the most significant challenge to the Indian Patent System since 2005

■ Pharma companies are averse to pre-grant opposition. The draft patent amendment rules help them by

making the process difficult

■ There are innumerable instances when patient groups and civil society organisations have filed pre-grant opposition, leading to rejection of patent extension

■ The latest pre-grant opposition ruling that was not in favour of a pharma company is the Bedaquiline drug for MDR-TB patients

Note:

Patent:**➤ About:**

- A Patent is a **statutory right for an invention granted** for a **limited period of time** to the patentee by the Government, in exchange of full disclosure of invention for excluding others, from making, using, selling, importing the patented product or process for producing that product for those purposes without his consent.
- Patent protection is a **territorial right** and therefore it is effective only within the territory of India. There is no concept of global patent.

➤ Patentability Criteria for an Invention:

- It should be novel.
- Must involve an inventive step (technical advancement)
- Capable of industrial application.

Right Area	Legal provision	Subject	Term of Protection
Patent	Patent Act, 1970 & Patent Rules, 2003 amended in 2014, 2016, 2017, 2019, 2020 and 2021.	Must qualify requirements of being novel, Inventive and having industrial utility	20 years

➤ Opposition Against Grant of a Patent:

- The Indian Patent Act, 1970 allows the public to file objections against patents at two stages: **Pre-grant opposition and Post-grant opposition.**

○ Pre-grant opposition:

● **Filing an Opposition:**

- Any person can file a pre-grant opposition in writing after the patent application's publication but before it's grant. Complete specifications are needed, not just the abstract.

● Grounds for Opposition:

- Wrongful Obtainment(Invention was wrongfully obtained), Prior Publication, Prior Claim, Prior Knowledge or Use, Obviousness, Non-Patentable Subject Matter, Insufficient Description, Non-Disclosure (Failure to disclose required details), False Disclosure, Time Limit(Conventional application not filed within 12 months from the first patent application), Biological Material(Failure to disclose the origin or source), Traditional Knowledge(The invention was anticipated using indigenous community knowledge).

○ **Post-grant opposition:**

- Once the patent has been granted, a **written opposition** can be filed after publication, and it must be submitted to the **Controller within 12 months of the patent's publication in the Indian Patent Journal.**
- Grounds for opposition are the same as in pre-grant opposition.

Deaths in India's Prisons

Why in News?

Recently, the **Supreme Court Committee on Prison Reforms** has found suicide to be one of the leading causes of Unnatural Deaths among Indian prisoners.

How are Prison Deaths Classified?

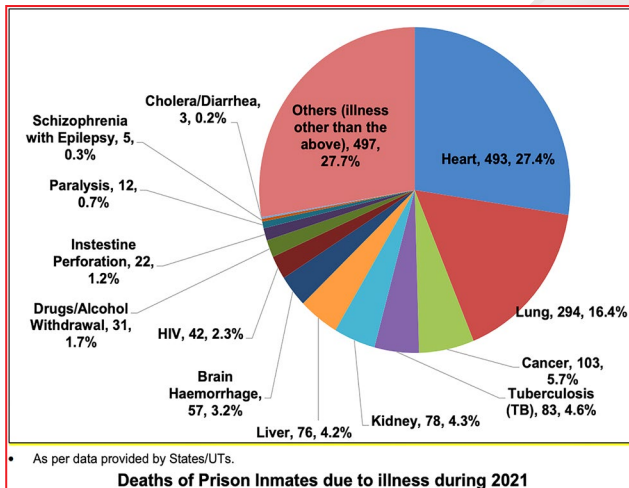
- **Prison Deaths** are labeled as **Natural or Unnatural** by the Prison Statistics India report published by the **National Crime Records Bureau (NCRB)** every year.
 - In 2021, a total of 2,116 prisoners died in judicial custody, with almost 90% of cases recorded as natural deaths.
- **Natural Deaths** account for aging and illness. Illness has been further sub-categorized into diseases **such as heart conditions, HIV, tuberculosis, and cancer**, among others.

Note:



drishti

- As the prison population swells, recorded natural deaths have increased from 1,424 in 2016 to 1,879 in 2021.
- **Unnatural Deaths are more diverse in classification, profiled as,**
 - Suicide (due to hanging, poisoning, self-inflicted injury, drug overdose, electrocution, etc.)
 - Death due to inmates
 - Death due to assault by outside elements
 - Death due to firing
 - Death due to negligence or excesses
 - Accidental deaths (natural calamities like earthquakes, snakebites, drowning, accidental fall, burn injury, drug/alcohol consumption, etc.
 - The **suicide rate among inmates** was found to be **more than twice** in comparison to what is recorded in the general population.



How are Deaths Investigated?

- Since 1993, the NCRB has been required to intimate a custodial death within 24 hours, followed by post-mortem reports, magisterial inquest reports or videography reports of the post-mortem.
- In cases of custodial rape and death, the **Code of Criminal Procedure** also requires compulsory judicial magisterial inquiry in place of an executive magistrate inquiry.

What are the Efforts to Tackle Prison Death?

- **Judgment of Supreme Court:**
 - The Supreme Court in a 1996 judgment articulated the social obligation towards prisoners' health, noting that they suffer from a "double handicap":

- First, the prisoners do not enjoy the access to medical expertise that free citizens have. Their incarceration places limitations on such access; no physician of choice, no second opinions, and few if any specialists.
- Secondly, because of the conditions of their incarceration, inmates are exposed to more health hazards than free citizens."

Government Efforts:

- The **Model Prison Manual of 2016** and the **Mental Healthcare Act of 2017**, outline inmates' right to healthcare.
- This includes **adequate investment in healthcare facilities**, setting up mental health units, training officers to provide basic and emergency care, and formulating suicide prevention programmes to thwart such instances.
- In light of rising suicide cases, the **NHRC in June 2023** issued an advisory to States, highlighting that **suicides arise out of both medical and mental health issues**.
- The NHRC recommended filling positions of "Prison Welfare Officers, Probation Officers, Psychologists, and Medical Staff".

What are the NHRC's

Recommendations Related to Prison Deaths?

➤ Preventing Suicide Attempts:

- Regular checks and vigilance on bed sheets and blankets of inmates are advised to ensure that these items are not used in attempts to commit suicide.

➤ Mental Health Training for Staff:

- A component of mental health **literacy should be included** in the basic training of prison staff. Periodic refresher courses are also recommended to keep staff informed and updated on **mental health-related matters**.

➤ Regular Observation and Support:

- Regular observation of **inmates by prison staff is essential**, and assigning a prisoner 'buddy' who is trained in psychological first aid can provide critical support to those in need.

➤ Gatekeeper Model Implementation:

- The Gatekeeper Model, devised by the **World Health Organization (WHO)**, should be adopted to strengthen mental health care in prisons.

Note:



drishti

- This involves **training carefully selected inmates to identify fellow prisoners** who may be at risk of suicide, thereby facilitating early intervention and support.
- **Addressing Addiction Issues:**
 - Measures to **tackle addiction among prisoners** should be implemented, including regular visits by mental health care professionals and de-addiction experts to provide necessary support and interventions.
- **Life-Skill Education and Activities:**
 - Inmates should be provided with **life-skill-based education and engaging activities** such as **Yoga, Sports, crafts**, drama, music, dance, and suitable spiritual and optional religious instructions.
 - These activities help channelize inmates' energies positively and occupy their time constructively. Collaboration with reputable **NGOs** can be sought to facilitate this.

Important Facts from Prison Statistics

- **Number of Prisons:**
 - The total number of prisons at national level has increased from 1,306 in 2020 to 1,319 in 2021, having increased by 1.0%.
 - The highest number of jails was reported in Rajasthan (144) followed by Tamil Nadu (142), Madhya Pradesh (131).
- **Capacity:**
 - The actual capacity of prisons has increased from 4,14,033 in 2020 to 4,25,609 in 2021, having increased by 2.8%.
 - Out of the total capacity 4,25,609 in 1,319 prisons in 2021, the Central Jails of the country were having the highest capacity (1,93,536) followed by the District Jails and the Sub Jails.
- **Convicted Prisoners:**
 - The number of convicted prisoners **has increased from 1,12,589 in 2020 to 1,22,852 in 2021**, having increased by 9.1% during the period.
 - The highest number of convicted prisoners were lodged in Central Jails followed by District Jails and Sub Jails by December, 2021.
- **Undertrial Prisoners.**
 - The number of undertrial prisoners has increased from 3,71,848 in 2020 to 4,27,165 in 2021 having increased by 14.9% during this period.
 - Among the 4,27,165 undertrial prisoners, the highest number of undertrial prisoners was lodged in District Jails followed by Central Jails and Sub Jails as on 31st December, 2021.
- **Detenues:**
 - The number of detenues has decreased from 3,590 in 2020 to 3,470 in 2021 (as on 31st December of each year), having decreased by 3.3% during this period. b. Among the 3,470 detenues, the highest number of detenues were lodged in Central Jails followed by District Jails and Special Jails as on 31st December, 2021.

Copyright Infringement and Passing Off

Why in News?

The **Delhi High Court** recently garnered attention by summoning Instagram account People of India (POI) in a **copyright infringement** suit filed by Humans of Bombay (HOB)

- This dispute stems from significant **similarities in their storytelling methods**, with HOB asserting that POI copied their content.
- This case emphasizes substantial legal concepts including **copyright infringement, injunctions, and passing off**.

Note:



drishti

What are the Key Terms Related to this Issue?

- **Copyright:**
 - Copyright refers to the legal protection provided to creators of literary, dramatic, musical, and artistic works, as well as producers of cinematograph films and sound recordings.
 - The **Copyright Act of 1957** aims to safeguard these creative works as the intellectual property of their creators.
 - Unlike the case with patents, **copyright protects the expressions and not the ideas.**
 - In addition to the act, the **Copyright (Amendment) Rules 2021**, are brought into effect to bring the copyrights in line with other relevant laws.
 - Copyright owners have the **right to take legal action** against infringers, including seeking remedies such as **injunctions**, damages, and accounts.
- **Injunction:** In the recent case of **HOB vs. POI**, HOB sought an injunction to prevent the infringement of their copyrighted content.
 - An **injunction is a court order** that typically directs someone to stop a particular action.
 - However, **obtaining an injunction is not a guarantee** that all instances of misuse will be rectified immediately, as enforcing it can be challenging.
- **Copyright infringement:** It occurs when a **copyrighted work is used without authorization**, particularly if a substantial part of the work is reproduced.
 - In HOB's case, the court observed "**substantial imitation**" between HOB and POI, but the degree of what is considered "**substantial**" can vary.
 - It often hinges on the quality rather than the quantity of the copied content. Even copying a catchy phrase from another work can constitute infringement.
- **Passing Off:** In the **Cadila Healthcare Limited vs. Cadila Pharmaceuticals Limited case, 2001** the Supreme Court ruled that **passing off is a form of unfair trade competition through which one party attempts to benefit from the reputation established by another** in a particular trade or business.
 - Passing off involves the misrepresentation or deception of consumers regarding the nature,

character, or performance of goods or services associated with rival traders.

- To establish a claim of passing off, there must be some form of **deception or harm to the goodwill** and reputation of the original owner.

Social Audit of MGNREGA Scheme

Why in News?

The **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**, a fundamental component of India's social welfare initiatives, has been marred by persistent concerns regarding a high incidence of **corruption**.

- Although the program incorporates mechanisms, such as **social audit units**, recent statistics reveal **disappointing outcomes** in terms of fund recovery and overall effectiveness.

What does

Recent Statistics Suggest?

- In the ongoing **financial year (2023-24)**, social audit units flagged **misappropriation amounting to ₹27.5 crore under MGNREGA**.
 - After taking corrective actions, this amount reduced to **₹9.5 crore**, but only a meager **₹1.31 crore (13.8% of the total)** has been recovered.
 - The recovery rates in previous financial years show a similar trend of inefficiency:
 - In 2022-23, the recoverable amount was ₹86.2 crore, but only ₹18 crore (**20.8% of the total**) was recovered.
 - In 2021-22, ₹171 crore was flagged, yet a mere ₹26 crore (**15% of the total**) was recovered.
- These consistently low recovery rates raise significant concerns about the **scheme's effectiveness in combating corruption**.
 - The low recovery rate also jeopardizes the **credibility of the entire audit process**. This threatens to undermine public trust in MGNREGA's integrity and purpose.

Note:



drishti

What is MGNREGA Scheme?

➤ **About:** MGNREGA is one of the largest work guarantee programmes in the world launched in **2005** by the **Ministry of Rural development**.

- It provides a **legal guarantee for one hundred days of employment** in every financial year to adult members of any rural household willing to do public work-related unskilled manual work at the statutory minimum wage.

- **Active workers: 14.32 Crore (2023-24)**

➤ **Major Features:**

- The cornerstone of MGNREGA's design is its legal guarantee, **ensuring that any rural adult can request work and must receive it within 15 days**.

- If this commitment is not met, an **"unemployment allowance"** must be provided.

- It requires that **priority shall be given to women** in such a way that at least **one-third of the beneficiaries** shall be women who have registered and requested for work.

- **Section 17 of the MGNREGA** has mandated **Social audit of all Works** executed under the MGNREGA.

➤ **Implementation Agency:** The **Ministry of Rural Development (MRD)**, Govt of India is monitoring the entire implementation of this scheme in **association with state governments**.

➤ **Objective:** This act was introduced with an aim of **improving the purchasing power of the rural people**, primarily semi or unskilled work to people living below poverty line in rural India.

- It attempts to **bridge the gap** between the rich and poor in the country.

**What is****Social Audit Mechanism?**

➤ **About:**

- Social Audit is the **examination and assessment of a programme/scheme** conducted with the active involvement of people and comparing official records with actual ground realities.
 - It is a powerful tool for **social transformation, community participation and government accountability**.
- It is different from **Financial Audit**. The financial audits scrutinize **financial records to assess an organization's financial health**, social audits

concentrate on evaluating a program's effectiveness in achieving its social goals by involving stakeholders.

➤ **Social Audit Mechanism under MGNREGA:**

- **Provision:**

- **Section 17 of the MGNREGA** has mandated Social audit of all works executed under the MGNREGA.
 - The **Audit of Scheme Rules, 2011**, also known as the **Mahatma Gandhi National Rural Employment Guarantee Audit of Schemes Rules, 2011**, were developed by the **Ministry of Rural Development in collaboration with the Comptroller and Auditor General (CAG)** of India.

Note:



drishti

- These rules outline the procedures for social audits and the duties of various entities, including the **Social Audit Unit (SAU)**, state government, and field workers of MGNREGA, to be followed nationwide.
- **Related Issues:**
 - **Fund-Starved Units:** Social audit units are grappling with **insufficient funding**, hindering their ability to function effectively.
 - The Union government provides funds to social audit units to ensure their independence from states.
 - However, issues with timely fund allocation have left units in states like **Karnataka and Bihar without funds for nearly two years.**
 - **Lack of Training:** Inadequate training and resources further hinder their effectiveness in identifying malpractice.
 - **Personnel Shortage:** Insufficient staffing makes it difficult for social audit units to carry out their duties effectively.
 - **Low Recovery Rate:** Several states, including **Gujarat, Goa, Meghalaya, Puducherry, and Ladakh**, have consistently reported **“zero cases” and “zero recoveries” over the last three years.** This raises questions about the effectiveness of monitoring in these regions.
 - States like Telangana, despite having active social audit units, **struggle with low recovery rates.**

SC Concerned About Delayed Judicial Appointments

Why in News?

Recently, the **Supreme Court (SC) of India** said the judiciary is losing fresh talent like never before as prospective candidates shortlisted for judgeships in **High Courts** give up their applications due to the government's prolonged inaction in processing High Court **Collegium** recommendations.

- The **Attorney General of India** was directed to provide updates on pending judicial appointments and transfers until 9th October, 2023.

What are the SC's Concerns Regarding Judicial Appointments?

- **Prolonged Delays and Talent Drain:**
 - The Supreme Court has raised concerns about the significant backlog of **70 High Court Collegium recommendations pending with the government for over 10 months.**
 - This extended delay in processing recommendations has led to a talent drain within the Judiciary, as prospective candidates **withdraw their candidature due to government inaction.**
 - Bright legal minds, eager to join the Bench, are withdrawing due to the uncertainty created by these delays.
- **Controversial Segregation of Names:**
 - The **government's practice of segregating names** from Collegium-recommended lists is a matter of grave concern.
 - Despite explicit forbidding by the Collegium, the government continued to segregate names, causing embarrassment and opposition to the Collegium's directions.
 - This controversial practice has resulted in candidates withdrawing their candidature.
- **Backlog of Appointments and Vacant Positions:**
 - The extensive backlog of High Court Collegium recommendations has **left numerous judicial positions vacant across the country.**
 - The Memorandum of Procedure mandates prompt appointment of names reiterated by the Collegium, but this process is not being followed, causing further delays.

Fewer judges, rising cases

Year after year, as vacancies of judges go unfilled, the pendency of cases continues to mount

High Courts (25)	Supreme Court	Pendency of cases
Sanctioned strength of judges: 1,114	Sanctioned strength: 34	In High Courts: 60,72,729
Working strength of judges: 774	Working strength: 32	Cases pending in High Courts for more than a year: 45,22,626 (74.47%)
Vacancies: 340	Vacancies: 2	Cases pending in the Supreme Court: 80,591

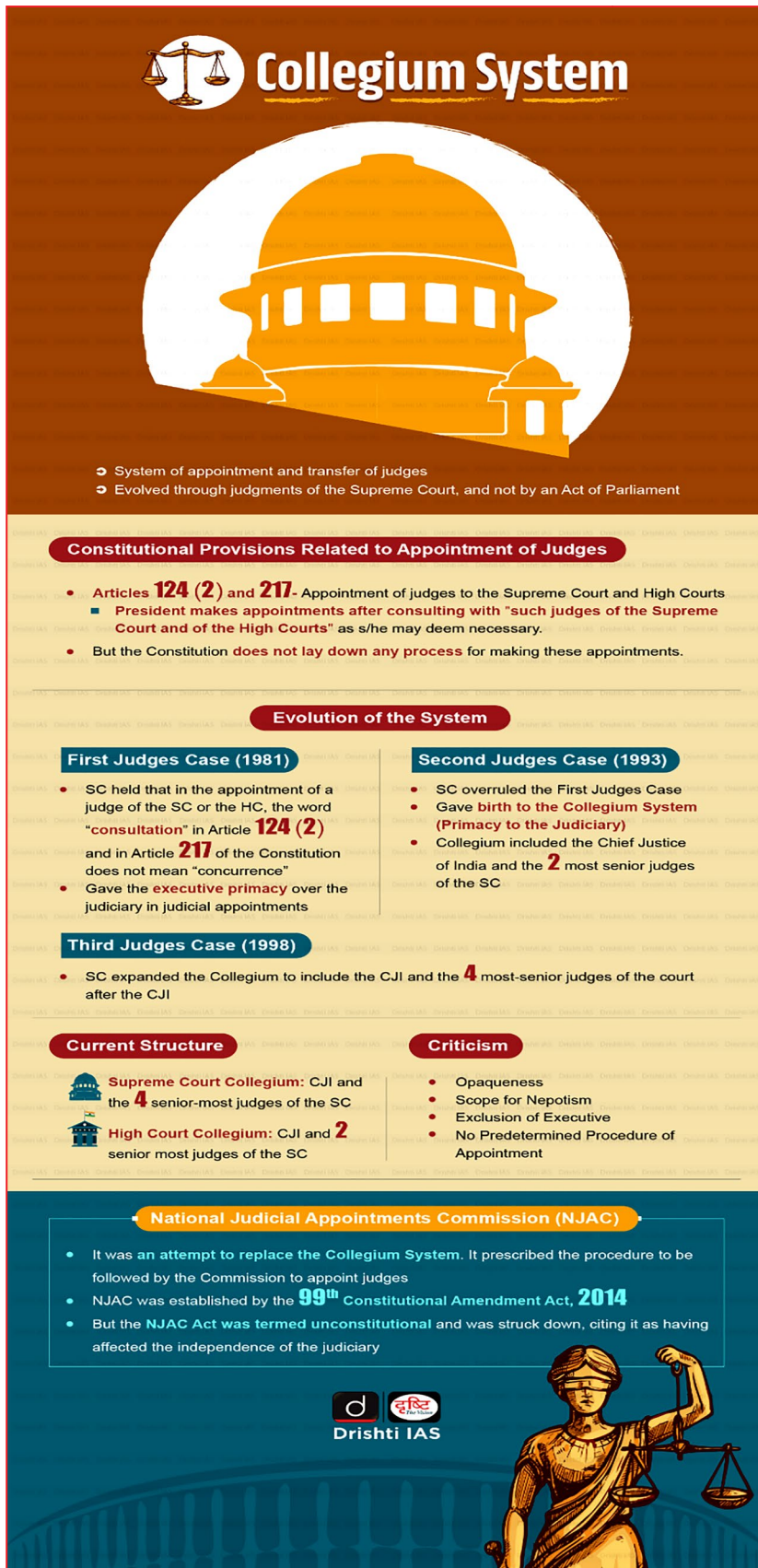
Courtesy: Department of Justice & National Judicial Data Grid

- **Specific Pending Cases:**
 - The appointment of a Chief Justice to the Manipur High Court remains pending, causing uncertainty.
 - Additionally, there has been no response from the government on 26 transfers recommended by the Supreme Court Collegium.

Note:



drishti



Collegium System

• System of appointment and transfer of judges
 • Evolved through judgments of the Supreme Court, and not by an Act of Parliament

Constitutional Provisions Related to Appointment of Judges

- Articles **124 (2)** and **217** - Appointment of judges to the Supreme Court and High Courts
 - President makes appointments after consulting with "such judges of the Supreme Court and of the High Courts" as s/he may deem necessary.
- But the Constitution **does not lay down any process** for making these appointments.

Evolution of the System

First Judges Case (1981)

- SC held that in the appointment of a judge of the SC or the HC, the word "consultation" in Article **124 (2)** and in Article **217** of the Constitution does not mean "concurrence"
- Gave the **executive primacy** over the judiciary in judicial appointments

Second Judges Case (1993)

- SC overruled the First Judges Case
- Gave birth to the **Collegium System (Primacy to the Judiciary)**
- Collegium included the Chief Justice of India and the **2** most senior judges of the SC

Third Judges Case (1998)

- SC expanded the Collegium to include the CJI and the **4** most-senior judges of the court after the CJI

Current Structure



- Supreme Court Collegium:** CJI and the **4** senior-most judges of the SC
- High Court Collegium:** CJI and **2** senior most judges of the SC

Criticism

- Opaqueness
- Scope for Nepotism
- Exclusion of Executive
- No Predetermined Procedure of Appointment

National Judicial Appointments Commission (NJAC)

- It was an attempt to replace the Collegium System. It prescribed the procedure to be followed by the Commission to appoint judges
- NJAC was established by the **99th Constitutional Amendment Act, 2014**
- But the **NJAC Act was termed unconstitutional** and was struck down, citing it as having affected the independence of the judiciary

How are Judges Appointments Carried Out in India?

➤ Chief Justice of India (CJI):

- The **President of India** appoints the **CJI** and the other SC judges.
 - As far as the CJI is concerned, the outgoing CJI recommends his successor.
 - In practice, it has been strictly by seniority ever since the supersession controversy of the 1970s.

➤ Supreme Court Judges:

- SC Judges are appointed by the President after consultation with the CJI and such other judges of the Supreme Court and the High courts as he deems necessary.
 - The CJI and a panel of four senior-most judges of the Supreme Court, known as the **Collegium**, recommend the names of the candidates to be appointed as SC judges to the President.

➤ Chief Justice of High Courts (HC) and Judges of HC:

- The Chief Justice of the HC is **appointed by the President** after consultation with the **CJI** and the **governor of the state concerned**.
- The judges of a **HC are appointed by the President**. High Court judges are recommended by a **Collegium comprising the CJI and two senior-most judges**. For appointment of judges, the chief justice of the concerned high court is also consulted.
 - The Chief Justice of the High Court is also required to consult his two senior-most puisne Judges before recommending a name for appointment to the High Court.

Note:

Economic Scenario

Highlights

- Periodic Labour Force Survey Annual Report 2022-2023
- World Economic Outlook: IMF
- Food Inflation in India
- World Cotton Day 2023
- Monetary Policy Committee Decisions: RBI
- 2023 Nobel Prize in Economic Sciences
- India's Aviation Industry
- Prompt NPA Labeling for Wilful Defaulters
- Illicit Trade in India

Periodic Labour Force Survey Annual Report 2022-2023

Why in News?

Recently, the **National Statistical Office (NSO)** released the **Periodic Labour Force Survey (PLFS) Annual Report 2022-2023** on the basis of **Periodic Labour Force Survey** conducted during July 2022-June 2023.

What are the Key Findings of the Report?

- **Estimates of Key Labor Market Indicators in Usual Status:**

Indicator	2017-18	2022-23	Trend
Labour Force Participation Rate (LFPR)			
- Total LFPR	49.8%	57.9%	Increased
- LFPR in Rural Areas	50.7%	60.8%	Increased
- LFPR in Urban Areas	47.6%	50.4%	Increased
- Male LFPR	75.8%	78.5%	Increased
- Female LFPR	23.3%	37.0%	Increased
Worker Population Ratio (WPR)			
- Total WPR	46.8%	56.0%	Increased
- WPR in Rural Areas	48.1%	59.4%	Increased
- WPR in Urban Areas	43.9%	47.7%	Increased
- Male WPR	71.2%	76.0%	Increased
- Female WPR	22.0%	35.9%	Increased
Unemployment Rate (UR)			
- Total UR	6.0%	3.2%	Decreased
- UR in Rural Areas	5.3%	2.4%	Decreased
- UR in Urban Areas	7.7%	5.4%	Decreased
- Male UR	6.1%	3.3%	Decreased
- Female UR	5.6%	2.9%	Decreased

- **Estimates of Key Labor Market Indicators Current Weekly Status (CWS):**

Indicator	2017-18	2022-23	Trend
Labour Force Participation Rate (LFPR)			
- Rural Areas	48.9%	56.7%	Increasing
- Urban Areas	47.1%	49.4%	Increasing
- Male	75.1%	77.4%	Increasing
- Female	21.1%	31.6%	Increasing
Total LFPR	48.4%	54.6%	Increasing
Workforce Participation Rate (WPR)			
- Rural Areas	44.8%	54.2%	Increasing
- Urban Areas	42.6%	46.0%	Increasing
- Male	68.6%	73.5%	Increasing
- Female	19.2%	30.0%	Increasing
Total WPR	44.1%	51.8%	Increasing
Unemployment Rate (UR)			
- Rural Areas	8.4%	4.4%	Decreasing
- Urban Areas	9.5%	7.0%	Decreasing
- Male	8.7%	5.1%	Decreasing
- Female	9.0%	5.1%	Decreasing
Total UR	8.7%	5.1%	Decreasing

Key Terms

- **Labour Force Participation Rate (LFPR):**
 - LFPR is the percentage of the working-age population (**aged 15 years and above**) that is either employed or unemployed, but willing and looking for employment.
- **Worker Population Ratio (WPR):**
 - WPR is defined as the **percentage of employed persons in the population**.
- **Unemployment Rate (UR):**
 - UR is defined as the **percentage of persons unemployed among the persons in the labour force**.

Note:



drishti

➤ Activity Status

- The activity status of a person is determined on the basis of the activities pursued by the person during the specified reference period. When the activity status is determined on the basis of the reference period of the last 365 days preceding the date of the survey, it is known as the usual activity status of the person.
- **Types of Activity Status:**
 - **Principal Activity Status (PS):**
 - The activity status on which a person spent a relatively long time (major time criterion) during 365 days preceding the date of the survey, was considered the usual principal activity status of the person.
 - **Subsidiary Economic Activity Status (SS):**
 - The activity status in which a person in addition to his/her usual principal status, performs some economic activity for 30 days or more for the reference period of 365 days preceding the date of survey, was considered the subsidiary economic activity status of the person.
 - **Current Weekly Status (CWS):**
 - The activity status determined on the basis of a reference period of the last 7 days preceding the date of the survey is known as the current weekly status (CWS) of the person.

What is the Periodic Labour Force Survey?

➤ About:

- It is a survey conducted by the **NSO** under the **Ministry of Statistics and Programme Implementation (MoSPI)** to measure the **employment and unemployment situation in India**.
- The **NSO** launched the PLFS in April 2017.

➤ Objective of PLFS:

- To estimate the key employment and unemployment indicators (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the short time interval of three months for the urban areas only in the 'Current Weekly Status' (CWS).
- To estimate employment and unemployment indicators in both 'Usual Status' and CWS in both rural and urban areas annually.

What are the Government's

Initiatives Related to Employment?

- **Support for Marginalized Individuals for Livelihood and Enterprise (SMILE)**
- **PM-DAKSH (Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi)**
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**
- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**
- **Start Up India Scheme**
- **Rozgar Mela**

What are the

Types of Unemployment?

Type of Unemployment	Description
Disguised Unemployment	More people are employed than needed, primarily found in the agricultural and unorganized sectors.
Seasonal Unemployment	Occurs during specific seasons of the year, often affecting agricultural laborers who do not work year-round.
Structural Unemployment	Arises from a mismatch between available jobs and the skills of workers.
Cyclical Unemployment	Linked to economic cycles, with unemployment rising during recessions and declining in periods of growth.
Technological Unemployment	Job losses due to technological changes. India has seen a significant impact from automation.
Frictional Unemployment	Involves a time lag when individuals search for or switch between jobs, often voluntary and not due to job shortages.
Vulnerable Employment	Informal, contract-less work without legal protection, often leading to unrecorded employment.

Note:

World Economic Outlook: IMF

Why in News?

Recently, the **International Monetary Fund (IMF)** has released its World Economic Outlook 2023 titled- Navigating Global Divergence, which stated that the **Indian Economy** will grow **faster than previously estimated**.

What are the Key Highlights of the World Economic Outlook?

- **Global Growth Forecasts:**
 - The IMF expects **global GDP (Gross Domestic Product)** growth to be **3% in 2023**, which is the same as its July 2023 forecast.
 - Global GDP growth for 2024, however, has seen a reduction of **10 basis points from the July forecast to 2.9%**.
- **Forecast for China:**
 - The Chinese economy is expected to grow at 5% in 2023, which is higher than the 3% it grew at in 2022.
 - The IMF's October forecast for China's 2023 and 2024 growth is 20 and 30 basis points lower than its July projections, which suggests that the world's second largest economy might be losing momentum.
- **Inflation and Monetary Policy:**
 - The IMF expects Global inflation in **2024 to rise at 5.8%**, faster than the 5.2% estimated three months and these projections do not reflect events of the weekend and their fallout.
- **Concerns and Risks:**
 - Growth has lagged on account of **Tight Monetary Policies** as central banks have kept **money supply tight to fight Inflation** which rose to 8.7% in 2022.
 - And it has lagged on account of an **uneven recovery from the pandemic** and supply chain disruptions caused by **Russia's invasion of Ukraine**.
- **Uncertainties and Downside Risks:**
 - Investment is lower than pre-pandemic levels, influenced by **higher interest rates and stricter lending conditions**.
 - The IMF advises countries to **rebuild fiscal buffers against** future shocks.
 - The chance of growth falling below 2% is seen at 15%, with more downside than upside risks for 2024.

What are the Findings Related to India?

- India's GDP for 2023-24 will be 6.3%, a 20-basis point increase from the July 2023 numbers.
 - The IMF's 2023-24 growth forecast for India is **now the same as what the World Bank (WB)** had projected in its India Development Update.
- India's 2024-25 GDP growth forecast has been left unchanged at **6.3%**.
- While the IMF's upward revision of India's 2023-24 GDP growth comes **in the wake of a strong 7.8% growth** in the quarter ending June 2023, the annual growth number is still **lower than the 6.5% projection** by RBI's Monetary Policy Committee (MPC).

What are the Key Recommendations?

- **Encourage business investment to boost economic growth**, as seen in the US, where stronger business investment has contributed to the upgraded growth forecast.
- Economic divergence across major economies, particularly in the eurozone, should be closely monitored, and the **factors causing contraction or slower growth in certain regions need to be addressed**.
- Exercise caution in managing inflation and monetary policy. The IMF emphasized that **globally synchronized central bank tightening is essential to control inflation** and maintain economic stability.

What is the IMF?

- The IMF is an **international organization** that promotes global economic growth and financial stability, encourages international trade, and reduces poverty.
 - It was set up in **1945 out of the Bretton Woods conference**.
- Originally, the primary goal of the IMF was to bring about international economic coordination to prevent competing currency devaluation by countries trying to promote their own exports.
 - Eventually, it evolved to be a lender of last resort to governments of countries that had to deal **with severe currency crises**.
- **Reports by IMF:**
 - Global Financial Stability Report.
 - World Economic Outlook.
 - It is usually published twice a year in the months of April and October.

Note:

Food Inflation in India

Why in News?

In recent times, **Consumer food prices were 9.9% higher** year-on-year, with food inflation now largely limited to cereals and pulses, and the government is required to start addressing concerns of both producers and consumers in equal measure.

What is the Recent Scenario of Food Price Inflation and Disinflation in India?

➤ Inflation in Cereals and Pulses:

- Estimates show **food inflation** is being increasingly driven by two items: **Cereals (11.9%) and pulses (13%)** in the preceding months of July and August respectively.
 - Annual retail price rise in vegetables was even higher, **at 37.4% and 26.1%**.
 - The best indicator is **tomato**, the retail inflation for which stood at 202.1 % and 180.3% during the same period.

➤ Disinflation in Essential Commodities due to Government's Strategy:

- Most governments naturally tend to privilege consumers over producers due to political reasons, which favours numerical strength.
- In the current scenario, **the government must prioritize listening to producers**, particularly in regard to two agricultural/food commodities, among other concerns.
 - **The first is vegetable oils Producer:**
 - Harvesting and marketing of soybeans has started, but the oilseed is already trading below the government's **minimum support price (MSP)**.
 - Demand for **both oil and meal** (the residual de-oiled cake, used as livestock feed ingredient) is weak.
 - A major reason for the bearish market sentiment has to do with record imports of **edible oil**. India's vegetable oil imports are projected to touch an all-time high of 17 million tonnes (mt) in 2022-23.

● The second item – Milk Producers:

- **There isn't much buying of powder, butter or ghee happening.** It will be worse once the festival (Dussehra-Diwali) season ends and the animals enter peak production in winter.
- Compounding the industry's problems is the **reported spurt in sales of ghee adulterated with vegetable fat**. The crash in prices of imported oils, especially palm, has made admixture of cheap fat in butter and ghee that much more attractive.

● Wheat and Rice as Essential Commodities:

- **Overproduction:** Farmers in India often respond to **Minimum Support Prices (MSPs)** by increasing production of MSP-supported crops, like wheat and rice. This overproduction can lead to a glut in the market, causing prices to fall below MSPs.
- **Inadequate Procurement and Distribution:** While the government sets MSPs and procures crops from farmers, the procurement infrastructure and distribution system may be inefficient, leading to delays in procurement and inadequate distribution of grains to consumers.
 - ◆ As a result, market prices can decline due to oversupply in the absence of effective distribution.

What is Consumer Food Price Inflation (CFPI)?

- **Consumer Food Price Inflation, (CFPI)**, is a specific measure of inflation that focuses exclusively on the price changes of food items in a consumer's basket of goods and services.
 - It calculates the rate at which the prices of food products consumed by the average household are increasing over time.
 - CFPI is a sub-component of the broader **Consumer Price Index (CPI)**, where the **Reserve Bank Of India (RBI)** uses **CPI-Combined (CPI-C)** for this purpose.
 - CFPI tracks the price changes of a specific basket of food items that are commonly consumed by households, **such as cereals, vegetables, fruits, dairy products, meat, and other food staples.**

Note:



drishti

Consumer Price Index (CPI):

- **CPI inflation**, also known as **retail inflation**, is the rate at which the prices of goods and services that consumers buy for personal use increase over time.
- It measures the change in the cost of a basket of goods and services that are typically purchased by households, including food, clothing, housing, transportation, and medical care.
- **Four types of CPI** are as follows:
 - CPI for Industrial Workers (IW).
 - CPI for Agricultural Labourer (AL).
 - CPI for Rural Labourer (RL).
 - CPI for Urban Non-Manual Employees (UNME).
- Of these, the first three are compiled by the **Labour Bureau** in the Ministry of Labour and Employment. **Fourth is compiled by the National Statistical Office (NSO)** in the Ministry of Statistics and Programme Implementation.

What are the Causes Behind Food Price Inflation?

- **Supply and Demand Imbalances:** When there is an imbalance between the supply of food and the demand for it, prices tend to rise.
 - Factors such as **extreme weather events, crop failures, or pest infestations can reduce the supply of agricultural products, driving up prices.**
 - Conversely, a surge in demand, perhaps due to population growth or changes in consumer preferences, can also lead to higher prices if supply cannot keep up.
- **Production Costs:** Rising production costs for farmers can lead to higher food prices. This includes expenses such as **fuel, fertilizer, and labor costs.**
- **Energy Prices:** The cost of energy, especially fuel, is a significant factor in the food supply chain. Increases in **oil prices can lead to higher transportation costs for getting food products from farms to stores, which can result in higher prices for consumers.**
- **Currency Exchange Rates:** Fluctuations in exchange rates can impact food prices, especially for **countries that rely heavily on imported food.** A weaker domestic currency can make imported food more expensive, contributing to inflation.
- **Trade Policies:** Trade policies and tariffs can affect the prices of imported and domestically produced

food. Restrictions on imports can limit the variety of available food products and potentially drive up prices.

- **Government Policies:** Government interventions in the form of **subsidies, price controls, or regulations can influence food prices.** Subsidies may reduce the cost of production, while price controls can limit price increases.
- **Global Events:** Global events such as **geopolitical conflicts, pandemics, and trade disruptions can disrupt food supply chains and lead to food price spikes.** The **COVID-19 pandemic**, for example, disrupted food production and distribution in many parts of the world.
- **Climate Change:** Long-term changes in climate patterns can have a significant impact on food production. More frequent and severe weather events, such as **droughts or floods, can damage crops and reduce yields, leading to higher prices.**

World Cotton Day 2023

Why in News?

Recently, the **Ministry of Textiles** hosted a conference for **World Cotton Day (7th October, 2023)** in collaboration with **Cotton Corporation of India (CCI)** and EU-Resource Efficiency Initiative which discussed best practices and sustainable methods in the cotton value chain.

- Conference led to the Introduction of the **“Bale Identification and Traceability System” (BITS)** using **Blockchain Technology.**
- It also led to the launch of the Kasturi **Cotton** program for quality cotton with traceability.

Note: On October 7, 2019, the **World Trade Organisation (WTO)** organized the first World Cotton Day, initiated by the Cotton-4 nations, which are Benin, Burkina Faso, Chad, and Mali.

What is Bale Identification and Traceability System (BITS) and Kasturi Cotton Program?

- **Bale Identification and Traceability System (BITS):**
 - The BITS is a technological initiative in the cotton industry that utilizes **Blockchain Technology** to assign **unique QR codes to cotton bales.**
 - **Objective:**

Note:



drishti

- BITS was introduced to ensure that key information about cotton bales, such as their quality, variety, origin, and processing details, is transparent and easily accessible to both domestic and international buyers.
- **Traceability:**
 - By scanning the QR code, stakeholders, including cotton buyers, textile manufacturers, and others, **can trace the entire journey** of the cotton bale from its origin to the final product.
- **Implementation:**
 - BITS is implemented by the **Cotton Corporation of India (CCI)** in collaboration with other relevant stakeholders such as **State Governments**.
- **Kasturi Cotton Program:**
 - The **Kasturi Cotton Program** is an initiative introduced by the **Ministry of Textiles** in India to promote the production and availability of premium quality cotton with traceability.
 - TEXPROCIL, in collaboration with CCI on behalf of the Ministry of Textiles, is overseeing the implementation of this program.
 - **Certified Quality:**
 - **Kasturi Cotton is not just any cotton;** it is certified to meet certain quality standards, which may include **fiber length, strength, color, and other characteristics** that make it suitable for premium textile products.

What are the Key Facts about Cotton?

- **About:** Kharif Crop which requires 6 to 8 months to mature.
 - Drought – resistant crops which are ideal for arid climates.
 - **Occupies 2.1% of the world's arable land**, meets 27% of the world's textiles needs.
- **Temperature:** Between 21-30°C.
- **Rainfall:** Around 50-100 cm.
- **Soil Type:** Well-drained **black cotton soil (Regur Soil)** (E.g. Soil of Deccan Plateau)
- **Products:** fiber, oil and animal feed.
- **Top Cotton Producing Countries:** India > China > US
- **Top Cotton Producing States in India:** Gujarat > Maharashtra > Telangana > Andhra Pradesh > Rajasthan.

- **Four cultivated species of cotton:** *Gossypium arboreum*, *G. herbaceum*, *G. hirsutum* and *G. barbadense*.
 - **Gossypium arboreum** and **G. herbaceum** are known as old-world cotton or Asiatic cotton.
 - **G. hirsutum** is also known as American cotton or upland cotton and *G. barbadense* as Egyptian cotton. These are both new world cotton species.
- **Hybrid Cotton:** Cotton made by **crossing two parent strains** that have different genetic characters. Hybrids are often spontaneously and randomly created in nature when open-pollinated plants naturally cross-pollinate with other related varieties.
- **Bt Cotton:** It is a **genetically modified organism** or genetically modified pest-resistant variety of cotton.

Monetary Policy Committee Decisions: RBI

Why in News?

Recently, **Reserve Bank of India (RBI)** in its bimonthly **Monetary Policy Committee (MPC)** Meeting has retained **benchmark interest rates unchanged** for the 4th time in a row.

- The MPC kept the policy **Repo Rate** Unchanged at 6.50%.

What are the Key Highlights of the MPC Meeting?

- **Repo Rate Unchanged:**
 - The RBI decided unanimously to keep the policy repo rate unchanged at 6.5% to **balance economic growth and inflation control**.
- **GDP Growth and Inflation:**
 - The RBI retained its real **GDP (Gross Domestic Product)** growth forecast for 2023-24 at 6.5% and the average CPI inflation forecast for the current fiscal year FY24 at 5.4%.
 - However, the MPC raised its **headline inflation projection for the second quarter to 6.4%**.
 - The RBI Governor stressed the **commitment to the 4% inflation target** and highlighted the importance of being prepared to take timely actions to prevent spillovers from food and fuel price shocks to underlying inflation trends.

Note:

- **Liquidity Management and Financial Stability:**
 - Liquidity in the system will be actively managed in line with the monetary policy stance.
 - The RBI will undertake **Open Market Operations (OMO)** sales as necessary. Financial stability is essential for price stability and growth.
- **Gold Loan under Bullet Repayment Scheme:**
 - The RBI announced **doubling the lending limits for Gold Loans** under the Bullet Repayment Scheme (BRS) for **urban cooperative banks to Rs 4 lakh**.
 - It has been decided in respect of **Urban Cooperative Banks (UCBs)** who have met the overall target and sub-targets under the **Priority Sector Lending (PSL)** as on 31st March, 2023.
 - A **BRS** is one where a **borrower repays interest** and the principal amount at the end of a loan tenure **without worrying about repayment during the loan tenure**.
- **Accommodative Stance:**
 - The RBI has **focused on its stance of 'withdrawal of accommodation'** until all risks to inflation dissipate.
 - An **Accommodative Stance** means the central bank is prepared to expand the **money supply to boost economic growth**.
 - Withdrawal of accommodation will mean reducing the money supply in the system which will rein in inflation further.

What are the Reasons for Keeping Benchmark Rates Unchanged?

- **Resilient Economic Activity:**
 - The Indian economy has **displayed resilience despite the uncertainties** and challenges posed by various factors.
 - This has led to the **decision to maintain benchmark rates**, reflecting confidence in the **economy's ability to withstand potential shocks**.
- **Previous Policy Repo Rate Hikes:**
 - The MPC considered the cumulative impact of previous policy repo rate hikes, totaling 250 basis points.
 - Given the time needed for these rate hikes to fully work through the economy, the **committee opted to hold the rates steady in the current meeting**.

- The MPC acknowledged that the **previous policy repo rate hikes are still in the process of influencing the economy**.

➤ **Inflation Risk Management:**

- The MPC remains committed to aligning inflation **with the 4% target on a durable basis**.
- And the existing policy stance is needed to **achieve this objective** without the need for an immediate rate change.
- The MPC expressed concerns about the **potential recurrence of food price shocks** affecting headline inflation.
 - Keeping rates unchanged might be a precautionary measure to closely monitor the situation and be ready to act promptly in case inflationary pressures escalate.

What are the Concerns Flagged by the RBI in its MPC Meeting?

- **High Inflation:**
 - The RBI views high inflation as a **major risk to both macroeconomic stability and sustainable growth**.
 - Despite declining core inflation (excluding food and fuel components), uncertainties **cloud the overall inflation outlook**.
 - Factors such as reduced kharif sowing for essential crops, low reservoir levels, and fluctuations in global food and energy **prices contribute to Time Liabilities this uncertainty**.
- **Geopolitical and Economic Risks:**
 - The RBI flagged various **headwinds, including geopolitical tensions, geoeconomic fragmentation, volatility in global financial markets, and a global economic slowdown**.
 - These external factors pose risks to the economic outlook and require careful consideration.
- **Financial Stability and Surveillance:**
 - The RBI underscored the importance of financial stability, calling it fundamental to price stability and growth. The financial sector's robust balance sheet was acknowledged, but vigilance and strengthened internal surveillance mechanisms, especially concerning the rise in personal loans, were advised.

Note:



Note:

- **CRR:** Cash Reserve Ratio, a percentage of Net Demand and , banks must keep with the central bank (RBI) to control liquidity.
 - **Incremental CRR:** Additional requirement imposed by RBI on banks' liabilities to manage excess liquidity and stabilize the economy.
- **Repo Rate:** It is the interest rate set by the RBI for short-term loans to commercial banks. It's a tool used to control inflation and stimulate economic growth.
- **Inflation:** It refers to the sustained increase in the general price level of goods and services in an economy over a period of time, leading to a decrease in the purchasing power of money.
 - **Headline Inflation:** It is the total inflation for the period, comprising a basket of commodities.
 - The food and fuel inflation form one of the components of headline inflation in India.
 - **Core Inflation:** It excludes volatile goods from the basket of commodities tracking Headline Inflation. These volatile commodities mainly comprise food and beverages (including vegetables) and fuel and light (crude oil).
 - Core inflation = Headline inflation – (Food and Fuel) inflation.
- **Inflation Targeting:** It is a monetary policy framework aimed at maintaining a specific target range for inflation.
 - The **Urjit Patel Committee** recommended **CPI (Consumer Price Index) over WPI (Wholesale Price Index)** as a measure for inflation targeting.
 - The current inflation target also aligns with the committee's recommendation to establish a target inflation rate of 4%, accompanied by an acceptable range of deviation of +/- 2%.
 - The central government, in consultation with the RBI, sets an inflation target, and an upper and lower tolerance level for retail inflation.
- **Liquidity** refers to the ease with which an asset or security can be quickly bought or sold in the market without significantly affecting its price.
 - It signifies the availability of cash or liquid assets to meet financial obligations or make investments. In simpler terms, liquidity is to get your money whenever you need it.

2023 Nobel Prize in Economic Sciences

Why in News?

Recently, the **Nobel Prize in Economics** for 2023 has been awarded to **Claudia Goldin**, a Harvard University professor, for research that has **advanced the understanding of the Gender Gap in the Labor Market**.

- Goldin is **only the third woman** to win this honor. In **2009**, **Elinor Ostrom** got the award along with **Oliver E Williamson**, while in **2019**, **Esther Duflo** shared it with **Abhijit Banerjee** and **Michael Kremer**.



What is the Nobel Prize in Economic Sciences?

- The Nobel Prize in Economic Sciences was **established in 1968 by the Sveriges Riksbank (the central bank of Sweden)** in memory of Alfred Nobel, the inventor of dynamite and the founder of the Nobel Prizes.
 - It is officially called the **Sveriges Riksbank Prize in Economic Sciences** in Memory of Alfred Nobel.
- Unlike the original Nobel Prizes in fields like **physics, chemistry, medicine, literature, and peace**, which were established by Nobel's will, the Nobel Prize in Economic Sciences is **not one of the original Nobel Prizes**.
- The prize was established later to honor outstanding **contributions to the field of economics**.
- The Prize recognizes individuals or organizations for their **exceptional research, discoveries, or contributions** that have advanced the understanding of **economics and its application to real-world problems**.

Note:



drishti

Why has Claudia been Chosen for the Nobel Prize in Economic Sciences?

➤ Claudia Goldin:

- Goldin has been a **pioneer in studying the role of women in the economy** and has written several books on the topic, such as **Understanding the Gender Gap: An Economic History of American Women (Oxford, 1990)**, and **Career & Family: Women's Century-Long Journey toward Equity (Princeton University Press, 2021)**.

➤ Claudia's Work:

- Goldin had provided **"the first comprehensive account of women's earnings and labour market participation** through the centuries.
- Her research reveals the **causes of change**, as well as the main sources of the remaining gender gap.
- Goldin's path breaking work has shed light on the **participation of women in the labour market over the past 200 years**, and why the pay gap between men and women refuses to close even as many women are **likely to be better educated than men in high-income countries**.
- While her research focused on the US, her findings are applicable to many other countries.

➤ Findings of Claudia's Research Related to Women's Participation in Workforce:

- **Historical Perspective:** Before **Industrialization**, women were **more likely to be involved in economic activities** related to agriculture and cottage industries.
 - However, with the rise of industrialization and factory-based work, women faced **difficulties leaving their homes to work**.
- **Role of the Services Sector:** In the early 20th century, the growth of the services sector played a **pivotal role in women's access to higher education** and employment opportunities.
 - This sector **offered more opportunities for women** to enter the workforce.
- **Marriage Barriers:** By the beginning of the 20th century, while around 20 % of women were **gainfully employed**, the share of **married women was only 5 %**.
 - Goldin noted that legislation known as "marriage bars" often prevented married women from **continuing their employment** as teachers or office workers.

- Despite an increasing demand for labour, married women were excluded from parts of the labour market.

○ **Role of Expectations and Career Choices:** Women's expectations about their future **careers played a significant role in the Gender Pay Gap**.

- Women's career decisions **were influenced by the experiences** of their mothers, leading to choices that did not necessarily prioritize long, uninterrupted, and fruitful careers.

○ **Role of Contraceptive Pills:** The availability of easy-to-use contraceptive pills by the end of the 1960s allowed **women to exercise greater control over childbirth** and plan their careers and motherhood.

- This led to more women studying subjects like law, economics, and medicine and entering various fields of employment.

○ **Role of Parenthood in Pay Gap:** Despite improvements in education and employment opportunities for women, a significant gender-based pay gap persisted.

- Initial earnings differences between men and women were small. However, once the first child arrived, women's earnings fell, and they did not increase at the same rate as men's earnings, even if they had similar education and professions.
- Parenthood played a role in the widening pay gap.

India's Aviation Industry

Why in News?

India's aviation industry has witnessed remarkable growth in recent years. However, this rapid expansion has also highlighted critical issues including **severe shortage of experienced pilots**.

What is the Status of the Aviation Industry in India?

- **About:** India's aviation industry is a collective sector encompassing all aspects of civil aviation within the country.
 - It includes various components, such as **airlines, airports, aircraft manufacturing, aviation services, and regulatory authorities**.

Note:



drishti

➤ **Status:**

- India has become the **third-largest domestic aviation market** in the world. India's airport capacity is expected to handle 1 billion trips annually by 2023.
- According to the data released by the **Department for Promotion of Industry and Internal Trade (DPIIT)**, FDI inflow in India's air transport sector (including air freight) reached **USD 3.73 billion** between **April 2000-December 2022**.

➤ **Associated Challenges:**○ **Infrastructure Constraints:**

- **Airport Congestion:** Many major airports in India, including those in **Mumbai and Delhi**, face severe congestion, leading to **delays and operational inefficiencies**.
- **Limited Regional Connectivity:** While major cities are well-connected, smaller towns and regions often lack adequate airport infrastructure and air connectivity.

○ **High Operating Costs:**

- High taxes on **aviation turbine fuel (ATF)** and airport charges contribute to increased operating costs.
 - Some Indian states charge up to **30% taxes on jet fuel**, which makes shorter flight routes unprofitable for smaller airlines.

○ **Pilot Shortages:**

- Airlines in India often struggle to recruit and retain experienced pilots, leading to disruptions and increased labor costs.
 - The surge in aircraft orders, **totaling over 1,100 new planes**, translates into a need for thousands of flight crew members.
 - However, the **average cost of pilot training in India is nearly ₹1 crore**.

- Airlines often charge additional fees to cadet pilots under various pretexts, significantly increasing the financial burden.

- **Security Threats:** Beyond **terrorism and hijacking**, security concerns are increasingly associated with **cyber threats to aviation infrastructure**, which can disrupt operations and compromise passenger data.

- **Other Challenges:** Critics argue that the management of medical standards by Indian Air Force doctors has led to the **grounding of a significant number of civilian pilots**.

- Also, there are numerous challenges associated with operating a flying training center, **exacerbated by corruption** among officials who enforce **regulations dating back to pre-Independence times**

➤ **Related Government Initiatives:**

- **Goods and Services Tax (GST)** rate reduced to 5% from 18% for domestic **Maintenance, Repair and Overhaul (MRO)** services.
- **RCS-UDAN** was launched to **promote air connectivity to unserved and underserved airports in Tier-II and Tier-III cities** to stimulate regional growth and provide affordable air travel to the citizens.
- **National Civil Aviation Policy 2016**

What Steps can be Taken to Re-energize the Aviation Sector in India?

- **Eco-Friendly Initiatives:** There is a need to Incentivize the development and use of **electric or hybrid aircraft for short-haul flights**, reducing emissions and operational costs.

- Also, there is a need to promote the use of **sustainable aviation fuels (SAFs)** and carbon offset programs to minimize the industry's environmental impact.

- In June 2021, SpiceJet announced its ambitious target to fly 100 million domestic passengers on **SAF blend by 2030** under the aegis of the **World Economic Forum (WEF)**.

➤ **Digital Twins for Maintenance:**

- There is a need to **implement digital twin technology** to create virtual replicas of aircraft, enabling predictive maintenance and reducing downtime.

➤ **Public-Private Partnerships (PPPs):**

- There is a need to foster collaboration between the **government and private sector to co-invest in airport infrastructure development**, ensuring world-class facilities.
 - The number of PPP airports in India is likely to increase from five in 2014 to 24 in 2024.

➤ **Reducing the Pilot Gap:**

- There is a need to **establish subsidized pilot training programs** in collaboration with aviation schools and academies.
 - This can make pilot training more affordable for aspiring aviators.

Note:



drishti

- **Aviation Tourism Packages:** To make India a hub of Aviation tourism, our aviation industry can **collaborate with the tourism industry to create innovative aviation-based tourism packages**, offering scenic flights, adventure experiences, and aerial photography tours.

Prompt NPA Labeling for Wilful Defaulters

Why in News?

The **Reserve Bank of India (RBI)** in a **recent draft proposed** that **lenders should classify** a borrower as a wilful defaulter **within six months** of their account being declared a **Non-performing Asset (NPA)**.

What are Key Highlights of the RBI Draft?

- Under the new regime, the lender must identify wilful defaulter borrowers within a specified six-month timeframe, whereas in the previous system, there was no such time constraint.
 - Lenders must assess wilful default for **accounts over Rs 25 lakh within 6 months of becoming NPAs**.
- An **Identification Committee** formed by lenders reviews evidence of wilful default.
- Policies require **non-discriminatory photo publishing for wilful defaulters**, and no credit is given to them for up to 1 year post removal from the **List of Wilful Defaulters (LWD)**; additionally, no credit for new ventures is allowed for 5 years after LWD removal.
- Guarantors can be pursued without exhausting remedies against principal debtors, and **investigation of wilful default is necessary** before transferring credit to others or ARCs.

Who is a Wilful Defaulter?

- **About:**
 - A **wilful defaulter means a borrower or a guarantor who has committed** wilful default and the outstanding amount is **Rs 25 lakh and above**.
 - A **large defaulter refers** to a borrower with an **outstanding balance of Rs 1 crore** or more, whose account has been categorized as doubtful or a loss.
- **Events Constituting Wilful Default:**
 - The unit has defaulted in meeting its payment/repayment obligations to the lender **even when it has the capacity** to honour the said obligations.

- The unit has defaulted in meeting its payment/repayment obligations to the lender and has not utilised the finance from the lender **for the specific purposes for which finance was availed** of but has diverted the funds for other purposes.
- The unit has defaulted in meeting its payment/repayment obligations to the lender and has **siphoned off the funds so that the funds have not been utilised for the specific purpose** for which finance was availed of, nor are the funds available with the unit in the form of other assets.
- The unit has defaulted in meeting its payment/repayment obligations to the lender and has also **disposed off or removed the movable fixed assets or immovable property** given by him or it for the purpose of securing a term loan without the knowledge of the bank/lender.

What is a Non-Performing Asset?

- **About:**
 - NPA refers to a **classification for loans** or advances that are in **default or are in arrears on scheduled payments of principal or interest**.
 - In most cases, debt is classified as non-performing, when the loan payments have not been made for a **minimum period of 90 days**.
 - **For agriculture**, if principle and interest is not paid for **two cropping seasons**, the loan is classified as NPA.
- **Types:**
 - **Gross NPA:** Gross NPAs are the sum of all the loans that have been defaulted by the individuals
 - **Net NPA:** Net NPAs are the amount that is realized after provision amount has been deducted from the gross non-performing assets.
- **Laws and provisions related to NPAs:**
 - **Bad Bank:**
 - The bad bank in India is called **National Asset Reconstruction Ltd (NARC)**.
 - This NARC will work as an asset reconstruction company.
 - It will buy bad loans from the banks, relieving banks of the NPA. NARC will then attempt to sell the stressed loans to distressed debt buyers.
 - The government has already set up **India Debt Resolution Company Ltd (IDRCL)** to sell these stressed assets in the market. Accordingly, IDRCL will attempt to sell them in the market.

Note:

- The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002:
 - The **SARFAESI Act** allows banks and financial institutions to take **possession of collateral assets** and **sell them to recover** outstanding dues without the intervention of the court.
 - It provides **provisions for the enforcement of security interests** and **allows banks** to issue demand **notices** to defaulting borrowers.
- The Insolvency and Bankruptcy Code (IBC), 2016:
 - The **IBC provides a comprehensive framework** for the **insolvency and bankruptcy resolution** process in India.
 - It aims to facilitate the **time-bound resolution** of stressed assets and **promote a creditor-friendly environment**.
 - Under the IBC, a **debtor or creditor can initiate insolvency** proceedings against a defaulting borrower.
 - It established the **National Company Law Tribunal (NCLT)** and the **Insolvency and Bankruptcy Board of India (IBBI)** to oversee the process.
- Importance of NPA Recovery:
 - The **recovery of NPAs** is crucial to **protect the interests of depositors** and stakeholders.
 - **Compromise settlements** should **prioritize the maximum recovery of dues** with minimal expense and within a shorter time frame.
 - Consideration of Public Interest:
 - During compromise settlements, **banks**, being public sector entities, should **consider the interests of the tax-paying public** over the borrowers' interests.

Illicit Trade in India

Why in News?

As per a report released by FICCI CASCADE titled 'Hidden Streams: Linkages Between Illicit Markets, Financial Flows, Organised Crime and Terrorism', the **illegal economy in India has an overall score of 6.3 in India** on a scale of 1-10, which is **higher than the average score of 5 of other 122 countries** indicating a substantial illegal Economy.

What is FICCI CASCADE?

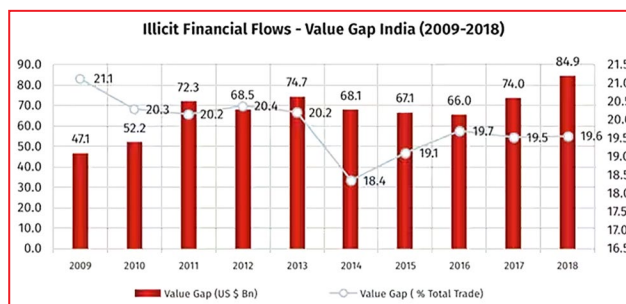
- FICCI CASCADE (Committee Against Smuggling and Counterfeiting Activities Destroying Economy), is an initiative by the **Federation of Indian Chambers of Commerce and Industry (FICCI)**.
- It was established on **18th January, 2011** in order to **address the pressing issue of illicit trade** in counterfeits, pass-offs, and smuggled goods in India and globally.

What is Illicit Trade?

- Illicit trade refers to the illegal exchange of goods, services, or commodities that circumvent established laws, regulations, or controls set by governments or international bodies.
- These activities **occur outside the legal framework and often involve various forms** of contraband, counterfeiting, piracy, smuggling, tax evasion, **Money Laundering**, and other illicit activities.

What are the Key Highlights of the Report?

- Overview of Illicit Trade in India:
 - 3.5 tonnes of gold, 18 crore cigarette sticks, 140 metric tonnes of **Red Sanders**, and 90 tonnes of heroin were seized in the **Financial Year of 2022-23**.
 - India has a lower score of 4.3 compared to the average score of 5.2 for 122 countries, suggesting a **lesser involvement of organised crime actors** but a significant influence of criminal networks.
- Illicit Financial Flows in India:
 - **Value Gap India (2009-2018):**
 - India faced an **approximate total potential revenue loss of USD 13 billion** due to **misinvoiced imports and exports** during 2009-2018.
 - Uncollected value-added tax (VAT) amounted to a total of USD 3.4 billion, contributing to the revenue gap.

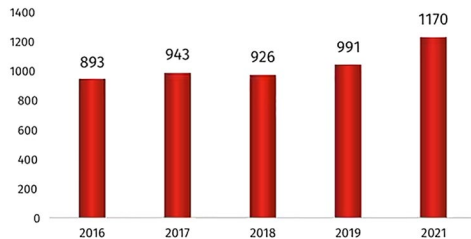


Note:

➤ Terror and Crime in India:

- Dealing with **terrorism and crime** cost India approximately USD 1170 billion at **Purchasing Power Parity (PPP)** in 2021, accounting for about 6% of the country's **GDP (Gross Domestic Product)**.
- PPP is a metric used by **macroeconomic analysis** that compares **different countries' currencies** through a "basket of goods" approach, allowing them to compare economic productivity and standards of living between countries.

Economic Impact of Violence for India (Billions PPP)

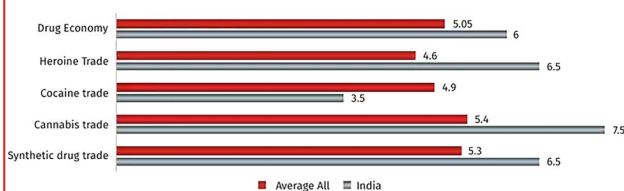


Source: TARI Research, Economic Value of Peace 2021, Global Peace Index 2023

➤ Drug Economy in India:

- India's location near **major drug-producing regions**, including the **Golden Triangle (Myanmar, Laos, and Thailand)** and the **Golden Crescent (Afghanistan, Pakistan, and Iran)** has been associated with **activities that may involve the transportation and distribution** of controlled substances.
- India has seen a rise in illicit drug trade, with 3,172 cases of drug seizures recorded during 2014-2022 compared to 1,257 cases during 2006-2013.
- **Cannabis** has a significant presence in India with a score of 7.5 compared to the benchmark average of 5.4. Synthetic drug trade and heroin trade also exceed benchmark averages with scores of 6.5.

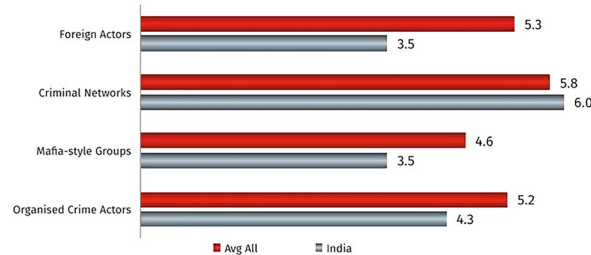
Illicit Drug Economy - India vs All Average



➤ Organised Crime and Illegal Economy in India:

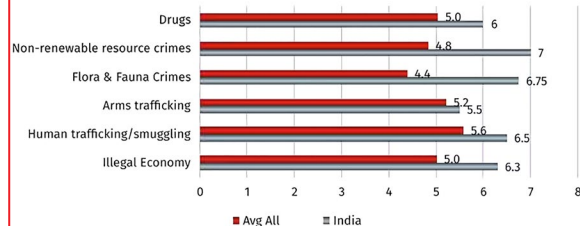
- Aggregate score of organized crime actors in India is low, at 4.3 compared to the average benchmark of 5.2 for 122 countries.

Organised Crime Actors: India vs Average All (122 Countries)



- The criminal network, however, has a significant influence in India with a score of 6, which is higher than the average score of 5.8 for 122 countries.
- The illegal economy in India has an overall score of 6.3, which is higher than the average score of 5 of 122 countries.
- This suggests that although there are fewer criminal actors, they are **widespread and engage in a variety of unlawful activities**, including **drug and human trafficking and the illegal trade in wildlife products**.
- This apparent contradiction may be attributable to the efficacy of criminal networks in India, which enables them to generate substantial illicit financial flows despite their small numbers.

Illegal Economy in India vs Average All (122 Countries)



Source: TARI Research, GOCI 2021

What are the Government Initiatives to Tackle Illicit Trade in India?

- **Terror Funding and Fake Currency (TFFC) Cell**
- **The Narcotic Drugs and Psychotropic Substances Act, (NDPS) 1985**
- **National Action Plan for Drug Demand Reduction**
- **National Fund for Control of Drug Abuse**
- **Prevention of Money-Laundering Act, 2002 (PMLA)**
- **PMLA (Amendment) Act, 2012**
- **The Smugglers and Foreign Exchange Manipulators (Forfeiture of Property) Act, 1976**
- **The Fugitive Economic Offenders Act, 2018**
- **The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015**

Note:

International Relations

Highlights

- Israel-Palestine Conflict
- Gaza Strip
- Comprehensive Nuclear Test Ban Treaty
- India Tanzania Relations
- Indian Ocean Rim Association
- The China-Tibet Issue
- India-Maldives Relations
- India, Iran and Chabahar Port
- India and Argentina Signs Social Security Agreement
- South China Sea

Israel-Palestine Conflict

Why in News?

Recently, the **Hamas**, the militant group ruling the **Gaza Strip**, have mounted a scathing attack on Israel from the land, air and water leading to multiple casualties. This has revived the century-old dispute between **Israel-Palestine Conflict** once again, necessitating the intervention by global and regional powers.

- Israel, in the recent times, has cemented many **peace agreements with neighboring countries such as UAE, Saudi Arabia** etc which is set to feel a jolt due to the recent attack.

What is the Israel-Palestine Conflict?

- **Balfour Declaration:**
 - The seeds of the conflict were laid in **1917** when the then British Foreign Secretary Arthur James Balfour expressed official support of Britain for a Jewish “national home” in Palestine under the **Balfour Declaration**.
- **Creation Of Palestine:**
 - Unable to contain Arab and Jewish violence, **Britain withdrew its forces from Palestine** in 1948, leaving responsibility for resolving the competing claims to the newly created **United Nations**.
 - The UN presented a partition plan to create independent Jewish and Arab states in Palestine which was not accepted by most of Arab nations.
- **Arab Israel War (1948):**
 - In **1948**, the Jewish declaration of Israel’s independence prompted surrounding Arab states

to attack. At the end of the **war**, Israel controlled about 50 % more territory than originally envisioned by the **UN partition plan**.

➤ UN Partition Plan:

- As per the Plan, **Jordan controlled the West Bank and Jerusalem’s holy sites, and Egypt controlled the Gaza Strip**. But it fell short of solving the palestinian crisis which led to the formation of **Palestinian Liberation Organisation in 1964**.

➤ Palestinian Liberation Organisation (PLO):

- PLO was founded, with the aim of freeing Palestine from clutches of Israel and Jewish domination and setting up the dominance of Muslim Brotherhood in the Arab world.
 - The **United Nations granted the PLO observer status in 1975** and recognizes Palestinians’ right to self-determination.

- **Six-Day War:** In **1967 war**, Israeli forces seized the Golan Heights from Syria, the West Bank & East Jerusalem from Jordan and Sinai Peninsula & Gaza strip from Egypt.

➤ Camp David Accords (1978):

- “Framework for Peace in the Middle East” brokered by the U.S. set the stage for peace talks between Israel and its neighbors and a resolution to the “Palestinian problem”. This however remained unfulfilled.

➤ Emergence of Hamas:

- **1987: Founding of Hamas**, a violent offshoot of Egypt’s Muslim Brotherhood seeking to fulfill its agenda through violent jihad.
 - **Hamas**- It is regarded as a terrorist organization by the U.S. government. In 2006, Hamas won the Palestinian Authority’s legislative elections.

Note:

It ejected Fatah from Gaza in 2007, splitting the Palestinian movement geographically, as well

- **1987:** Tensions in the occupied territories of West Bank and Gaza reached boiling point resulting in the First **Intifada** (Palestinian Uprising). It grew into a small war between Palestinian militants and the Israeli army.

➤ **Oslo Accords:**

- **1993:** Under the **Oslo Accords** Israel and the PLO agree to officially recognize each other and renounce the use of violence. The Oslo Accords also established the **Palestinian Authority**, which received limited autonomy in the Gaza Strip and parts of the West Bank.
- **2005:** Israel begins a unilateral withdrawal of Jews from settlements in Gaza. However, Israel kept tight control over all border crossings (blockade).
- **2012-** UN upgrades Palestinian representation to that of “**non-member observer state**”.

➤ **Territorial Disputes of Israel with Neighboring Countries:**

- **West Bank:** The West Bank is sandwiched between **Israel and Jordan**. One of its major cities is Ramallah, the de facto administrative capital of Palestine. Israel took control of it in the 1967 war and has over the years established settlements there.
- **Gaza:** The Gaza Strip located between Israel and Egypt. **Israel occupied the strip after 1967**, but relinquished control of Gaza City and day-to-day administration in most of the territory during the Oslo peace process. **In 2005, Israel unilaterally**

removed Jewish settlements from the territory, though it continues to control international access to it.

- **Golan Heights:** The Golan Heights is a strategic plateau that Israel captured **from Syria in the 1967 war**. Israel effectively annexed the territory in 1981. Recently, the USA has **officially recognized** Jerusalem and Golan Heights as a part of Israel.

How has the Relationship of India with Israel Evolved over the Years?

➤ **India's Stand on the Israel-Palestine Conflict:**

- India was one of the few countries to oppose the UN's partition plan in 1947, echoing its own experience during independence a few months earlier.
- **India** recognised Israel in 1950 but it is also the first non-Arab country to recognise **Palestine Liberation Organisation (PLO)** as the sole representative of the Palestinian. India is also one of the first countries to recognise the statehood of Palestine in 1988.
- In recent times, India is being seen shifted towards a **Dehyphenation of Policy**.
- **Dehyphenation of Policy:**
 - India's policy on the longest running conflict in the world **has gone from being unequivocally pro-Palestine for the first four decades, to a tense balancing act** with its three-decade-old friendly ties with Israel.
 - In recent years, **India's position has also been perceived as pro-Israel**.
- Further, India believes in a **Two-State Solution** with respect to **Israel-Palestine conflict**, and proposes the right to self-determination to both the countries in a peaceful manner.



What is the Impact of Assault on Israel-Saudi Arabia Ties?

- One of the reasons for Hamas' assault on Israel can be attributed to **disrupting efforts to bring Saudi Arabia and Israel together**, along with other countries that may be interested in normalizing relations with Israel.
- Hamas had highlighted threats to **Jerusalem's Al-Aqsa Mosque**, the continuation of an Israeli blockade on Gaza and **Israeli normalization with countries in the region**.

Note:

- Dehyphenating Saudi Arabia from Israel will help promote the agenda of Muslim Brotherhood and territorial sovereignty over the Arab and Middle East region.
- Normalization of ties of regional powers with Israel will further embolden and strengthen the position of Israel vis-a-vis reclaiming Palestinian territories.
- Ties with UAE, Egypt, Saudi Arabia etc will provide a vigorous push to infrastructural development, and create inter-dependence and inter-relationships among these countries, much to the chagrin of Palestinians.

ISRAEL-PALESTINE CONFLICT

The Israel-Palestine conflict is a long-standing geopolitical dispute over territory and self-determination in the Middle East.

BEGINNING

- UN adopted **Resolution 181** – the Partition Plan in 1947
- State of Israel created in 1948, sparking the **first Arab-Israeli War** (Israel won)
 - Palestinians displaced
 - Division of territory into – State of Israel, West Bank and Gaza Strip

INITIAL TENSIONS AND CONFLICTS (1956-1979)

- **Suez Crisis** and Israeli **invasion of Sinai Peninsula** in 1956
- **Six-Day War (1967)** – Israel gained control over Sinai Peninsula, Gaza Strip, West Bank, East Jerusalem and Golan Heights

Controversy over Jerusalem as Capital

- **Israel view:** Complete and united Jerusalem
- **Palestinians view:** East Jerusalem future capital

- **Yom Kippur War (1973)** – Surprise attack by Egypt and Syria
- **Camp David Accords (1979)** b/w Egypt and Israel

Intifada (Arabic for 'shake off')

- **First Intifada** – 1987 to 1993
 - ◆ Led to the foundation of Hamas (1987) – a Palestinian political party designated as a foreign terrorist org by US
 - ◆ Response – **Madrid Conference 1991** (chaired by the US and Russia)
- **Second Intifada** – 2000-2005
- The latest escalation (2023) is being called the beginning of “Third Intifada”

OSLO ACCORDS (MEDIATED BY US)

- **First (1993)**
 - Estd framework for **Palestinian self-governance** in West Bank and Gaza
 - Enabled mutual recognition between Israel and Palestine

Second (1995)

- Expanded on Oslo I Accords
- Mandated **complete Israeli withdrawal** from several cities and towns in **West Bank**

POST 2000 CONFLICT AND RESPONSES

- **2013** – US-led peace process began
- **2014-18** – Gaza Conflict (2014)
 - Palestine announced break from territorial divisions under Oslo Accords (2015)
- **2018-20** – US Cancelled funding for Palestinian refugees under UN Relief and Works Agency (UNRWA)
 - US proposed “**Peace to Prosperity**” plan
- **2020** – **Abraham Accords**
- **2022-2023:**
 - Israel raids on **Jenin refugee camp**
 - Hamas launched “**Operation AL-Aqsa Flood**” and Israel launched “**Operation Iron Swords**” (both in 2023)
 - ◆ Israel declared a **State of War**
 - **India's Stand:**
 - ◆ Supports a **Two State solution** for Israel and Palestine
 - ◆ **Condemned the recent attack** by Hamas on Israel



Gaza Strip

Why in News?

The recent escalation of conflict between **Israel and Hamas militants** has thrust the **Gaza Strip** into the global spotlight.

- Amidst this turmoil, Israel's defense minister, declared a **"complete siege"** of the **Gaza Strip**, cutting off essential resources. This move has highlighted the long-standing and contentious issue of the **Gaza blockade**, which has been in place since **2007**.



What are the Significant Aspects Regarding the Gaza Strip?

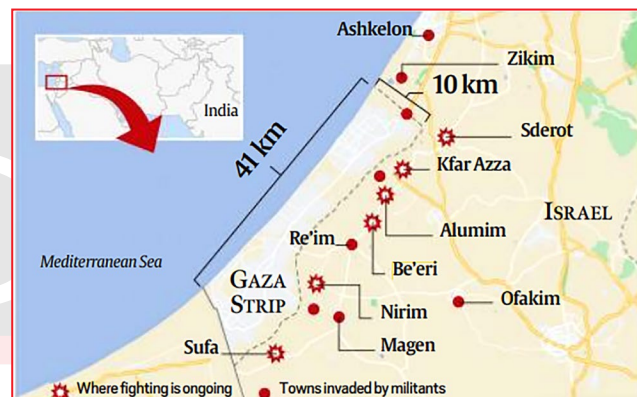
- **About:** The **Gaza Strip** is situated in the **eastern Mediterranean basin**, sharing borders with **Egypt** in the southwest and **Israel** to the north and east. To the west, it is bounded by the **Mediterranean Sea**.
 - It is one of the **most densely populated areas globally**, with over **2 million residents** living in a **tiny area**.
 - The term **"open air prison"** has been widely used by academics, activists, and journalists to characterize the **conditions in Gaza**.
- **Historical Significance:**
 - The **Six-Day War of 1967** resulted in **Israel capturing Gaza from Egypt** and initiating its military occupation of the region.
 - Israel withdrew its settlements from Gaza in **2005**, but this period also saw **intermittent blockades on the movement of people and goods**.
 - In **2007**, after **Hamas assumed power in Gaza**, **Israel and Egypt** enforced a **permanent blockade**, justifying it as necessary for security.

- The **United Nations Office for the Coordination of Humanitarian Affairs (OCHA)** reported that the blockade has severely impacted Gaza's economy, resulting in high unemployment, food insecurity, and aid dependency.

➤ Related Border Areas:

- **Gaza is encircled by walls on three sides**, and its **western border is controlled by Israel**, restricting access by sea.
- Three functional border crossings exist - **Karem Abu Salem Crossing** and **Erez Crossing** controlled by **Israel**, and **Rafah Crossing** controlled by **Egypt**.
- These crossings have been sealed in response to recent hostilities.

➤ Associated Places in Spotlight:



Comprehensive Nuclear Test Ban Treaty

Why in News?

Russia has recently indicated that it is moving towards **revoking its ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT)**.

What is the Comprehensive Nuclear Test Ban Treaty (CTBT)?

➤ Genesis of the CTBT:

- The CTBT is a multilateral treaty aimed at **banning all nuclear explosions, whether for military or peaceful purposes**.
- The roots of the CTBT can be traced back to the **Cold War** era when the **United States** and the **Soviet Union** were engaged in a **nuclear arms race**, conducting numerous nuclear tests.

Note:



drishti

Treaties Against Nuclear Weapons

Part - I

Nuclear Weapons

- The most dangerous weapons on earth; a **bomb or missile that uses nuclear energy to cause an explosion.**
- Nuclear weapons release energy either by **nuclear fission (atomic bombs) or nuclear fusion (hydrogen bombs).**
- Even a single weapon is potent of **destroying a whole city**, potentially **killing millions**, **jeopardising the natural environment** and lives of future generations.
- They were used for the **first and last time in WW-II** by the US in 1945 on **Hiroshima and Nagasaki.**

Treaty on the Non-Proliferation of Nuclear Weapons (NPT 1970)



- **Objective:**
 - Prevent the spread of nuclear weapons and its technology
 - Foster peaceful uses of nuclear energy
 - Further the goal of nuclear disarmament
- **Member States:**
 - 191 with **5 nuclear-weapon states (NWS)** (US, Russia, UK, France & China)
- **Nuclear-Weapon States:**
 - Those who **manufactured & exploded** a nuclear weapon or nuclear explosive device **before 1st January 1967**
- **Significance:**
 - **Only binding treaty** to the goal of disarmament by the NWS
- **India and NPT:**
 - India (along with Pakistan, Israel, North Korea, and South Sudan) is **not a member**
 - Opposes it as a **discriminative disarmament policy**
 - India's policy - **No First Use against NWS** and **no use against non-NWS**
- **NPT Review Conference:**
 - **Undertakes review** of the treaty's implementation **quinquennially**



- Between 1945 and 1996, over 2,000 nuclear tests took place globally, with the U.S. conducting 1,032 tests and the Soviet Union conducting 715 tests, among others.
- In response to concerns about the **environmental and health impacts of nuclear tests**, the international community made efforts to limit testing.
- The **Limited Nuclear Test-Ban Treaty (LTBT) of 1963** prohibited nuclear testing in the **atmosphere, outer space, and underwater but allowed underground tests**.
- The **Threshold Test Ban Treaty (TTBT) of 1974** prohibits **underground nuclear weapons tests** and establishes a **nuclear “threshold,”** yet it falls short of providing a comprehensive ban on all nuclear testing.
- **Breakthrough with the CTBT:**
 - The end of the Cold War and the **dissolution of the Soviet Union** created a conducive environment for comprehensive arms control measures.
 - The CTBT was negotiated at the **Conference on Disarmament in Geneva in 1994**.
 - In 1996, the **United Nations adopted the CTBT**, which imposed a complete ban on nuclear weapons testing, closing the gaps left by previous treaties.
 - The CTBT became available for signature in September 1996, signifying a major advancement in the global endeavour to halt nuclear testing across the world.
 - The CTBT will enter into force 180 days after it has been **ratified by all 44 states listed in Annex 2 to the treaty**, which are states that possessed nuclear reactors or research reactors at the time of its adoption.
- **Current Position:**
 - It has been signed by 187 nations and ratified by 178. However, the treaty cannot formally enter into force until it is **ratified by 44 specific nations**. Eight of these nations have yet to ratify the treaty:
 - China, India, Pakistan, North Korea, Israel, Iran, Egypt, United States.

India Tanzania Relations

Why in News?

Recently, India welcomed the **President of Tanzania** at the **India Tanzania Investment Forum** in New Delhi.

- **India and Tanzania** have upgraded their bilateral relations to the level of a **strategic partnership**.

What are the Key Takeaways from the Visit?

- Both nations inked **six agreements** to strengthen cooperation across various vital domains.
 - It encompasses **cooperation in the digital domain, culture, sports, maritime industries, and white shipping information sharing**.
 - These agreements lay the foundation for fostering technological and cultural exchange between the two nations.
- Both nations are promoting trade between the **Indian Rupee and Tanzanian Shilling** by enabling authorized banks in India to open **Special Rupee Vostro Accounts of correspondent banks in Tanzania**.
 - Efforts to address concerns and ensure the sustainability of this currency trade mechanism are underway.
- The newly established **five-year defense roadmap** sets the stage for expanded cooperation in **military training, maritime collaboration, capacity building, and the defense industry**.
- Both nations expressed their intent to enhance cooperation in **maritime security in the Indian Ocean region**.
 - The success of the first-ever **India-Tanzania joint Exclusive Economic Zone (EEZ) surveillance exercise in July, 2023** was a positive step in this direction.
- Tanzanian President Samia Suluhu Hassan received an **honorary doctorate** from **Jawaharlal Nehru University in Delhi**.
 - She is the **first woman to receive this honor** for her role in promoting **economic diplomacy, regional integration, and multilateralism** between India and Tanzania.
- The Government of Tanzania also announced that they would be joining the **International Big Cat Alliance** and the **Global Biofuel Alliance**.

What are the Key Facts Related to Tanzania?

- **About:** Tanzania is the largest country in East Africa. With **eight neighbors**, it is among the top 10 countries in the world with the most international borders.
 - The islands of **Zanzibar, Pemba and Mafia** are also a part of Tanzania.

Note:



drishti



- **Capital:** Dar es Salaam is the administrative capital of the country while Dodoma is the legislative capital.
- **Currency:** Tanzanian shilling
- **Landform:**
 - Its northern region has the **southern part of Lake Victoria**, which is the source of the **River Nile**.
 - Also, in the north is the World famous **Ngorongoro Crater**, which is the **world's largest intact volcanic caldera**.
 - The Northeastern part of the country is mountainous. This region is home to **Mount Meru**, an active volcano, and **Mount Kilimanjaro**, the tallest mountain in Africa and the **highest single free-standing mountain in the world**.
 - In the west lies **Lake Tanganyika**, the world's **second deepest lake**.
 - The eastern region has coastal lowlands along the **Indian Ocean**.

What are the Other Areas of Cooperation Between India and Tanzania?

- **About:**
 - India sees Tanzania as a **valuable partner in the Indo-Pacific region**, reflecting the broader geopolitical context.
 - Tanzania plays an important role in overall **India-Africa relations**.
- **Economic Cooperation:**
 - India is the **largest destination for Tanzania's exports** and two-way trade was worth **USD 6.4 billion in 2022-23**, including Indian exports of USD 3.9 billion.
 - India is the fifth largest investor in Tanzania.

- **India's Major Exports to Tanzania:** Petroleum products, Pharmaceutical products, Machinery, nuclear reactors, boilers, Electrical, electronic equipment, Sugars and sugar confectionery
- **Tanzania's Major Exports to India:** Gold ore, cashew nuts, spices (mainly cloves), ores and metal scrap, gemstones, etc.

Education & Health Cooperation

- **IIT Madras Zanzibar** - 1st Offshore campus of IIT established in Tanzania
- India gifted **10 ambulances** to Tanzania in 2023
- Essential medicines gifted by India to Tanzania in 2018, 2020 and 2021
- India gifted over **1,30,000 NCERT Science & Mathematics text books** to Tanzanian Secondary Schools in 2017
- Radiation therapy machine '**Bhabhatron II**' for cancer patients setup by India in Mwanza, Tanzania in 2016
- **2 ICT Centres** with Param Supercomputers setup in Dar es Salaam & Arusha under India's assistance

Indian Ocean Rim Association

Why in News?

Sri Lanka is set to take over the chairmanship of the **Indian Ocean Rim Association (IORA)** during the **23rd Council of Ministers' Meeting** scheduled for **11th October, 2023**, in Colombo, Sri Lanka. It will hold the chairmanship of the association from 2023 to 2025.

- Bangladesh held the chairmanship from **November 2021 - November 2023**.

What is the Indian Ocean Rim Association?

- **About:**
 - The vision for IORA originated during a visit by the then **President of South Africa, Nelson Mandela**

Note:

of South Africa to India in **1995**, where he said: **“the natural urge of the facts of history and geography should broaden itself to include the concept of an Indian Ocean rim for socio-economic co-operation.”**

- It underpinned the **Indian Ocean Rim Initiative in March 1995**, and the creation of the Indian Ocean Rim Association (then known as the **Indian Ocean Rim Association for Regional Cooperation**) in March 1997.

➤ **Members:**

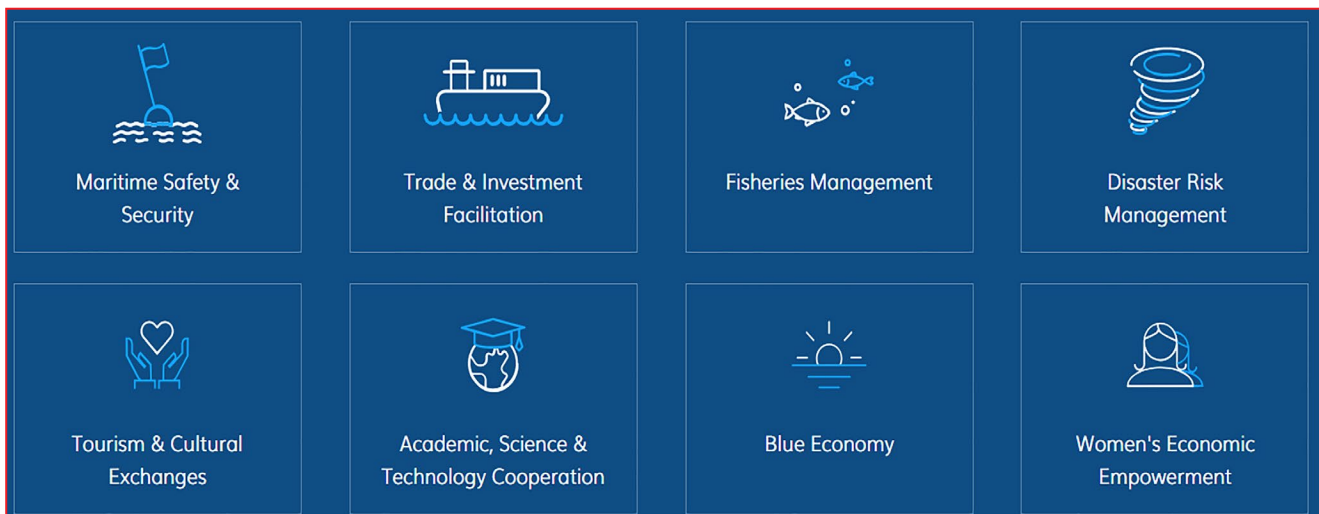
- Currently, IORA has **23 Member States** and 11 Dialogue Partners.

- **Members:** Australia, Bangladesh, Comoros, France, **India**, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates, Yemen.

- **Dialogue Partners:** China, Egypt, Saudi Arabia, Germany, Italy, Japan, South Korea, **Russia**, Turkey, the United Kingdom, and the **United States of America**.

➤ **Secretariat:** Mauritius.

➤ **Six Priority and Two Focus Areas:**



➤ **Indian Ocean:**

- As the **third largest ocean woven together by trade routes**, commands control of major sea-lanes carrying **half of the world's container ships**, **one third of the world's bulk cargo traffic** and **two thirds of the world's oil shipments**, the Indian Ocean remains an important lifeline to international trade and transport.

The China-Tibet Issue

Why in News?

During a recent discussion with reporters in Dharamshala, the **Dalai Lama** reaffirmed his stance that **Tibetans seek greater autonomy within China**, emphasizing their desire for **self-governance** while remaining part of the People's Republic of China.

What is the China-Tibet Issue?

➤ **Tibet's Independence:**

- Tibet is a region on the Tibetan Plateau in Asia,

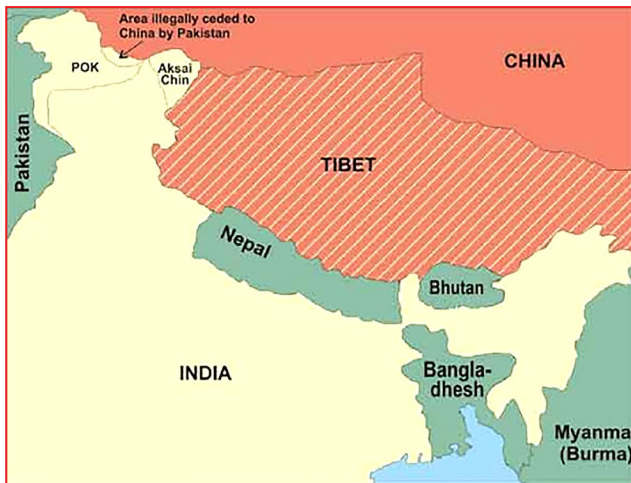
spanning about 2.4 million km²— nearly a quarter of China's territory.

- It is the traditional homeland of the Tibetan people as well as some other ethnic groups.
- **Tibet is the highest region on Earth**, with an average elevation of 4,900 meters. The **highest elevation in Tibet is Mount Everest**, Earth's highest mountain, rising 8,848 m above sea level.
- The **13th Dalai Lama, Thubten Gyatso**, announced de facto Tibetan independence in early 1913.
 - China did not recognize Tibet's independence and continued to claim sovereignty over the region.

Note:



drishti



➤ Chinese Invasion and Seventeen Point Agreement:

- From 1912 until the founding of the People's Republic of China in 1949, no Chinese government exercised control over what is today **China's Tibet Autonomous Region (TAR)**.
- The Dalai Lama's government alone ruled the land until 1951. **Tibet was not "Chinese" until Mao Zedong's People's Liberation Army (PLA) marched in and invaded Tibet.**
- In 1951 Tibetan leaders were forced to sign a treaty dictated by China. The treaty, known as the **"Seventeen Point Agreement"**, professes to guarantee Tibetan autonomy and to respect the Buddhist religion but also allows the establishment of Chinese civil and military headquarters at Lhasa (Tibet's capital).
 - However, the Tibetan people, including the Dalai Lama consider it invalid.
 - This has often been described by the **Tibetan people and third party commentators as "a cultural genocide"**.

➤ 1959 Tibetan Uprising:

- Escalating tensions between Tibet and China led to a critical turning point in 1959 when the Dalai Lama, along with a group of followers, fled to India, seeking asylum.
- Tibetans who followed the Dalai Lama formed an exiled government based in Dharamshala, India, known as the **Central Tibetan Administration (CTA)**.

➤ Aftermath of the 1959 Tibetan Uprising:

- Since the 1959 Uprising, the central government of China has been steadily tightening its grip on Tibet.

- In Tibet today, there is **no freedom of speech, religion, or press and arbitrary detentions continue.**
- Forced abortion, sterilization of Tibetan women, and the transfer of low-income Chinese citizens threaten the survival of Tibetan culture.
- Although China has invested in infrastructure improvements for the region, particularly in **Lhasa itself**, it has also encouraged thousands of ethnic Han Chinese to move to Tibet resulting in demographic shift.

What is the Impact of Tibet and the Dalai Lama on India-China Relations?

- For centuries, Tibet was India's actual neighbour, as most of India's boundaries and the **3500km LAC (Line of Actual Control) is with the Tibetan Autonomous Region, and not the rest of China.**
- In 1914, it was Tibetan representatives, along with the Chinese that **signed the Simla convention with British India that delineated boundaries.**
- However, after **China's full accession of Tibet in 1950**, that China repudiated the convention and the **McMahon line that divided the two countries.**
- Further, in 1954, India signed an agreement with China, agreeing to recognize Tibet as **"Tibet region of China"**.
- The presence of the **Dalai Lama in India** has been a persistent irritant in **India-China relations, as China considers him a separatist.**
- The Tibetan plateau's significance in terms of water resources and geopolitical considerations adds complexity to the **India-China-Tibet equation.**

What are the Recent Developments in Tibet?

- China has been building and developing next generation **infrastructure in Tibet**, such as border defense villages, dams, an all-weather oil pipeline, and internet connectivity projects.
- China is trying to **control the selection of the next Dalai Lama**, by promoting that Tibetan Buddhism has always been part of Chinese culture.
- The Indian government **doesn't give citizenship to Tibetans born in India after the cut-off year of 1987.**
 - This has created a sense of dissatisfaction amongst the youth of the Tibetan community.

Note:



drishti

Dalai Lama:**➤ About:**

- The Dalai Lama belongs to the **Gelugpa tradition of Tibetan Buddhism**, which is the **largest and most influential tradition in Tibet**.
- There have been only **14 Dalai Lamas** in the history of Tibetan Buddhism, and the **first and second Dalai Lamas were given the title posthumously**.
 - The 14th and current Dalai Lama is Tenzin Gyatso.
- The Dalai Lamas are believed to be manifestations of **Avalokiteshvara or Chenrezig, the Bodhisattva of Compassion and the patron saint of Tibet**.
 - Bodhisattvas are realized beings inspired by a wish to attain **Buddhahood for the benefit of all sentient beings**, who have vowed to be reborn in the world to help humanity.
- **Process to Choose Dalai Lama:**
 - The process to choose the Dalai Lama traditionally involves identifying the **reincarnation of the previous Dalai Lama**, who is considered the spiritual leader of Tibetan Buddhism.
 - The search for the Dalai Lama's reincarnation typically begins after the **previous Dalai Lama's passing**.
 - According to Buddhist scholars, it is the responsibility of the High Lamas of the Gelugpa tradition and the Tibetan government to seek out and find the next Dalai Lama following the death of the incumbent.
 - **If more than one candidate** is identified, the true successor is found by officials and **monks drawing lots in a public ceremony**.
 - The **selected child, usually very young**, is then recognized as the reincarnation of the Dalai Lama and undergoes a rigorous spiritual and educational training.
 - The Dalai Lama's role encompasses both **spiritual and political leadership** in Tibetan Buddhism, and the selection process plays a crucial role in Tibetan cultural and religious traditions.
 - This process can take several years: it took four years to find the 14th (current) Dalai Lama.
 - The search is generally limited to Tibet, although the current Dalai Lama has said that there is a chance that he will not be reborn, and that if he is, it will not be in a country under Chinese rule.

India-Maldives Relations

Why in News?

Maldives, located to the south of India, in the **Indian Ocean**, saw the election of a Pro-China candidate as the next president of the nation, which allegedly raises concern for India in recent times.

- Historically, Maldives had an Executive Presidency system since 1968, transitioning to a multi-party democracy in 2008. **No incumbent president has been re-elected since then**, which is concerning for India this time.



Note: Maldives' electoral system is similar to France, where the winner has to secure more than 50% of votes. If no one crosses the mark in the first round, in the second round, the top two candidates go head to head.

How has India's Relations with Maldives been?**➤ Security Partnership:**

- Defense cooperation extends to the areas of Joint Exercises - **"Ekuverin"**, **"Dosti"**, **"Ekatha"** and **"Operation Shield"** (begun in 2021).

Note:



drishti

- India provides the largest number of **training opportunities for Maldivian National Defence Force (MNDF)**, meeting around 70% of their defense training requirements.
- **Rehabilitation Centre:**
 - Signing of contract for the **Addu reclamation and shore protection project**.
 - A drug detoxification and rehabilitation centre in Addu built with Indian assistance.
 - The centre is one of 20 high impact community development projects being implemented by India in areas such as **healthcare, education, fisheries, tourism, sports and culture**.
- **Economic Cooperation:**
 - Tourism is the mainstay of Maldivian economy. The country is now a major tourist destination for some Indians and a job destination for others.
 - In August 2021, **Afcons, an Indian company, signed a contract for the largest-ever infrastructure project** in Maldives which is the **Greater Male Connectivity Project (GMCP)**.
 - India emerged as Maldives' 3rd largest trade partner in 2021.
 - A Bilateral USD Currency Swap Agreement between RBI and Maldives Monetary Authority was signed on 22nd July 2019.
 - The India-Maldives relationship suffered a setback when Maldives entered into a **Free-Trade Agreement (FTA)** with China in 2017.
- **Infrastructure Projects:**
 - Hanimaadhoo International Airport Development project under an **Indian credit line will add a brand-new terminal to cater to 1.3 million passengers** a year.
 - In 2022, the National College for Policing and Law Enforcement (NCPL) was inaugurated by India's External Affairs Minister.
 - NCPL is the largest grant **project executed by India in Maldives**.
- **Greater Male Connectivity Project:**
 - It will consist of a 6.74 km-long bridge and causeway link between Male and nearby islands of Villingli, Gulhifalhu and Thilafushi. It will use renewable energy.
 - **The project is funded by a grant of USD 100 million and a Line of Credit (LOC) of USD 400 million from India.**

- It is not only the biggest project India is doing in the Maldives but also the biggest infrastructure project in the Maldives overall.

Different Operations in Maldives:

- **Operation Cactus 1988:** Under **Operation Cactus** the Indian Armed Forces have helped the government of Maldives in the neutralization of the coup attempt.
- **Operation Neer 2014:** Under **Operation Neer** India supplied drinking water to Maldives to deal with the drinking water crisis.
- **Operation Sanjeevani:** India supplied 6.2 tonnes of essential medicines to Maldives, under **Operation Sanjeevani** as assistance in the fight against **COVID 19**.

What is the Issue of China in India-Maldives Relations?

- **Chinese Infrastructure Investments:**
 - Maldives, like many other countries in the Indian Ocean region, has been a recipient of Chinese infrastructure investments.
 - Maldives have massive Chinese investment and became a participant in China's **Belt and Road Initiative (BRI)**. China funded and built various projects in Maldives, including the development of ports, airports, bridges, and other critical infrastructure as part of the **"String of the Pearls"** initiative.
- **Shift in Alliances:**
 - The pro-China stance led to a shift in Maldives' traditional foreign policy, which had typically been closer to India. This shift created apprehensions in India about China's growing influence in its immediate neighborhood and the potential strategic implications.
- **India's Concerns:**
 - India has expressed concerns about China's growing presence in the **Indian Ocean region**, particularly in countries like Sri Lanka, Pakistan, and Maldives. The development of Chinese-controlled ports and military facilities in these areas has been seen as a challenge to India's strategic interests and regional security.
- **India's Countermeasures:**
 - India has responded by intensifying its diplomatic and strategic engagement with Maldives and other Indian Ocean nations. It has provided economic assistance, undertaken infrastructure projects, and

Note:

expanded defense cooperation to strengthen its influence in the region.

- India's **"Neighborhood First"** policy aims to counterbalance China's increasing presence.

➤ **Political Developments:**

- With the election of President Ibrahim Mohamed Solih in 2018, who is seen as more inclined towards India, **there has been a shift in Maldives' foreign policy back towards India**. Solih's government has sought to balance relations between India and China while maintaining traditional ties with India.

➤ **Strategic Importance:**

- Maldives' strategic location in the Indian Ocean, along key maritime routes, continues to make it strategically significant for both India and China. As a result, both countries are likely to closely monitor developments in Maldives and vie for influence in these regions.

Geography of Maldives:

- **Maldives, a Toll Gate in the Indian Ocean:** Located at the southern and northern parts of this island chain lies the **two important sea lanes of communication (SLOCs)**.
 - These SLOCs are critical for maritime **trade flow between the Gulf of Aden and Gulf of Hormuz in West Asia and the Strait of Malacca in Southeast Asia**.
- **Physical geography primarily consists of Coral Reefs and Atolls** and most of the area is under **Exclusive Economic Zones (EEZs)**
 - Maldives primarily consists of an archipelago of low lying islands, which has been threatened due to rising sea rise.
- **Eight Degree Channel** separates Indian Minicoy (part of Lakshadweep Islands) from that of Maldives.

India, Iran and Chabahar Port

Why in News?

India and Iran are making significant progress in finalizing a **10-year pact for operations at the Chabahar port**, with key issues narrowing down.

- Additionally, the two nations are exploring ways to address the **depletion of Iran's rupee reserves**, which has impacted trade, especially in commodities like **rice, tea, and pharmaceuticals**.

What is the Significance of Chabahar Port for India?



➤ **About:**

- **Chabahar is Iran's only oceanic port.** It is situated in Sistan and Baluchistan Province, on the **Makran coast**.
- There are two main ports in Chabahar – the **Shahid Kalantari port** and the **Shahid Beheshti port**.
 - The Shahid Kalantari port was developed in the 1980s.
 - Iran had offered India the project of developing the Shahid Beheshti port which was well received by India.

➤ **Progress and Updates Regarding the Chabahar Port Deal:**

- The two countries signed an **initial agreement in 2016** for India to develop and operate the port's Shahid Beheshti terminal for 10 years.
- However, the **finalization of the long-term agreement has been delayed by several factors** including **differences on some clauses in the pact**.
 - One of the main sticking points was the **clause related to jurisdiction for arbitration in case of disputes**.
 - India wanted the arbitration to be held in a neutral country, while Iran preferred its own courts or a friendly country.
- According to some recent reports, India and Iran have narrowed the gap on the arbitration issue and are looking at the **option of taking up these matters at arbitration courts in a location such as Dubai**.

Note:

- They have also made progress on other issues, such as tariffs, customs clearance, and security arrangements.

➤ **Significance of Chabahar Port:**

- **Alternative Trade Route:** Historically, India's access to Afghanistan and **Central Asia** has been largely **dependent on transit routes through Pakistan**.
- Chabahar Port offers an alternative route that bypasses Pakistan, reducing India's reliance on its neighbor for trade with Afghanistan and beyond.
 - This is particularly important given the often-tense relations between India and Pakistan.
- Also, Chabahar port will boost **India's access to Iran**, the key gateway to the **International North-South Transport Corridor** that has sea, rail and road routes between **India, Iran, Russia, Central Asia and Europe**.
- **Economic Benefits:** Chabahar Port offers India a gateway to the resource-rich and economically vibrant region of Central Asia.
 - It can significantly enhance **India's trade and investment opportunities in these markets**, potentially leading to economic growth and job creation in India.
- **Humanitarian Assistance:** Chabahar Port can serve as a crucial entry point for **humanitarian assistance and reconstruction efforts in Afghanistan**.
 - India can use the port to provide aid, infrastructure development support, and other assistance to Afghanistan, contributing to regional stability.
- **Strategic Influence:** By developing and operating Chabahar Port, **India can enhance its strategic influence in the Indian Ocean region**, thus strengthening India's geopolitical position.

What is the Status of Economic Ties Between India and Iran?

➤ **Status:**

- Over the years, India's trade with Iran has seen significant fluctuations. In 2019-20, India's imports from Iran, primarily crude oil, **fell by about 90% to USD 1.4 billion compared to USD 13.53 billion in 2018-19**.
- Also, Iran has seen a depletion of its **rupee reserves in the vostro account**, affecting its ability to import key Indian commodities like **basmati rice and tea**.

➤ **Revival:**

- To revive **trade between India and Iran**, which has been impacted by **US and Western sanctions**, both nations are considering the option of **rupee-rial trade**.
 - This move aligns with the **Reserve Bank of India's** decision to allow **invoicing and payments for international trade in Indian rupees in July 2022**.
- Rupee-Rial trade refers to trade between India and Iran using their **respective currencies, the Indian Rupee (INR) and the Iranian Rial (IRR)**, instead of using widely accepted international currencies like the US Dollar (USD).
 - This type of trade is often used when international sanctions or restrictions make it difficult for **countries to use global currencies for trade with a particular nation**, as was the case with Iran due to US sanctions.

India and Argentina Signs Social Security Agreement

Why in News?

India and Argentina recently signed a '**Social Security Agreement(SSA)**' aimed at safeguarding the legal rights of professionals in each other's domains. This agreement is expected to facilitate **risk-free international mobility for professionals from both countries**.

What is the Social Security Agreement?

➤ **About:**

- It ensures that the rights of professionals and workers in both countries are protected against the **loss of social security benefits or contributions**.

➤ **Need:**

- The growing number of Indian professionals working in Argentina and Argentine nationals seeking employment in India necessitated this legal framework.

➤ **Key Highlights:**

- The **SSA applies to legislation in both India and Argentina** concerning various aspects of social security, including **old age, survivor's pension**, and permanent, **total disability pension for employed persons**.

Note:



drishti

- The agreement **provides rights and benefits to detached workers**, i.e., employees working in another country on a temporary basis, and their family members.
 - These benefits include **cash allowances for retirement or pension**, rent, subsidy, or lump sum payments, all as per local legislation, without any reduction, modification, suspension, suppression, or retention.
- The SSA establishes the legal framework for regulating the **insurance period**, which includes the period of services credited with contributions, contributory benefits, and their export for detached workers.
 - This framework also covers crew members of airlines and ships.
- The agreement addresses legislation concerning contributory benefits of the **Social Security System in Argentina**.
- The agreement would protect the rights of professionals and workers against loss of benefits or contributions made towards social security in both countries and thus **facilitate greater movement of professionals** and the labour force.

How are India-Argentina Relations?

➤ Political Relations:

- India-Argentina relations were elevated to the level of **Strategic Partnership in February 2019**.
- India opened a Trade Commission in Buenos Aires in 1943, which was later converted into one of the first embassies of India in South America in 1949.
- Argentina had established a Consulate in Calcutta in the 1920s, which was transferred to Delhi as an Embassy in 1950.

➤ Economic Relations:

- India is the **4th largest trading partner of Argentina**, with bilateral trade touching a historic peak of **USD 6.4 billion in 2022**, recording a growth rate of 12% over 2021.
- Major items of India's exports to Argentina include petroleum oils, agrochemicals, **yarn-fabric-made ups, organic chemicals, bulk drugs and two-wheelers**.
- Major items of India's imports from Argentina include **vegetable oils (soya bean and sunflower), finished leather, cereals, residual chemicals and allied products and pulses**.

➤ Cultural Relations:

- India and Argentina have historical and literary ties, such as the visit of **Rabindranath Tagore to Argentina in 1924** and the award of an honorary doctorate to Victoria Ocampo by Visva Bharati University in 1968.

➤ Counter-Terrorism

- India and Argentina issued a **separate joint declaration to fight terrorism**.
- Argentina condemned the recent terrorist attack in **Pulwama, Jammu and Kashmir in the strongest terms**.
- Both countries reiterated their commitment to **combat terrorism** in all its forms and manifestations and gave a call that any country must not allow their territory to be used to launch terrorist attacks on other countries.

Argentina:

- **Capital:** Buenos Aires.
- **Official Language:** Spanish.
- Argentina is the **eighth largest country in the world**.
 - The country is bounded by **Chile to the south and west, Bolivia and Paraguay to the north, and Brazil, Uruguay, and the Atlantic Ocean to the east**.
- The highest mountain in the Andes range is the **Cerro Aconcagua**.
- Argentina is rich in resources, has a well-educated workforce, and is **one of South America's largest economies**.
- **The country is divided into four regions:** The **Andes**, the North, the Pampas, and Patagonia. The Pampas is the agricultural heartland.



Note:

South China Sea

Why in News?

Recently, the **Philippines Coast Guard** removed barriers placed by **Chinese vessels** at the entrance to a lagoon off the **Scarborough Shoal**.

- This incident came after Chinese Coast Guard ships placed a 300-meter-long barrier to **prevent boats from the Philippines from entering**, adding to the **long-running tensions in the South China Sea**.



What is the Significance of the South China Sea?

- **Strategic Location:** The South China Sea is **bordered by China and Taiwan to the north**, the **Indo-Chinese peninsula** (including **Vietnam, Thailand, Malaysia, and Singapore**) to the west, **Indonesia and Brunei** to the south, and the **Philippines** to the east (referred to as the **West Philippine Sea**).

- It is connected by the **Taiwan Strait** with the **East China Sea** and by the **Luzon Strait** with the **Philippine Sea** (both marginal seas of the Pacific Ocean).
- **Trade Importance:** Approximately **USD 3.37 trillion worth of trade passed through the South China Sea in 2016**, making it a crucial global trade route.
 - According to the **Center for Strategic and International Studies (CSIS)**, **80% of global trade by volume** and **70% by value** is transported by sea, with **60% of it passing through Asia** and **one-third of global shipping moving through the South China Sea**.
 - **China, the world's second-largest economy**, relies heavily on the South China Sea, with an estimated **64% of its trade passing through the region**. In contrast, only **14% of U.S. trade traverses these waters**.
 - India relies on the region for approximately **55% of its trade**.
- **Fishing Ground:** The South China Sea is also a **rich fishing ground**, providing a vital source of **livelihood and food security** for millions of people in the region.

What are the Major Disputes in the South China Sea?

- **Dispute:**
 - The heart of the South China Sea dispute revolves around **territorial claims to land features (islands and reefs)** and their associated territorial waters.
 - The major island and reef formations in the South China Sea are the **Spratly Islands, Paracel Islands, Pratas, the Natuna Islands and Scarborough Shoal**.
 - As many as **70 disputed reefs and islets** are under **contention**, with **China, Vietnam, the Philippines, Malaysia, and Taiwan** all building more than 90 outposts on these disputed features.
 - China claims up to **90% of the sea with its "nine-dash line" map** and has physically expanded islands and constructed military installations to assert control.
 - China has been particularly active in the **Paracel and Spratly Islands**, engaging in extensive dredging and artificial island-building, creating **3,200 acres of new land** since 2013.

Note:

- China also controls the **Scarborough Shoal** through a constant Coast Guard presence.
- **Efforts to Resolve the Dispute:**
 - **Code of Conduct (CoC):** Talks between **China** and the **Association of Southeast Asian Nations (ASEAN)** have aimed at establishing a CoC to manage the situation, but progress has been slow due to internal ASEAN disputes and the magnitude of China's claims.
 - **Declaration on the Conduct of Parties (DoC):** In 2002, ASEAN and China adopted the DoC, affirming their commitment to peaceful dispute resolution in accordance with international law.
 - The DoC was meant to pave the way for a CoC, which remains elusive.

- **Arbitral Proceedings:** In 2013, the **Philippines** initiated arbitral proceedings against China under the **UN Convention on the Law of the Sea (UNCLOS)**.
 - In 2016, the **Permanent Court of Arbitration (PCA)** ruled against China's "nine-dash line" claim, stating it was inconsistent with UNCLOS.
 - China rejected the arbitration ruling and asserted its sovereignty and historical rights, challenging the PCA's authority.

Note: Under the **UNCLOS**, each state can establish a **territorial sea** of up to **12 nautical miles** and an **Exclusive Economic Zone (EEZ)** extending up to **200 nautical miles** from the territorial sea baseline.



Note:

Social Issues

Highlights

- Granting Habitat Rights and Implications
- Global Hunger Index 2023
- Scheduled Areas in India
- World Mental Health Day
- Concerns of Caste-Based Discrimination
- Recognising the Heterogeneity of Northeast India
- Caste-Census in Bihar

Granting Habitat Rights and Implications

Why in News?

Recently, the Chhattisgarh Government has granted habitat rights to its **Baiga PVTG (Particularly Vulnerable**

Tribal Group) right after the Kamar PVTG received habitat rights in August 2023.

- The Baiga PVTG became the second group to be granted these rights in Chhattisgarh.
- Chhattisgarh has **seven PVTGs (Kamar, Baiga, Pahadi Korba, Abujmadiya, Birhor, Pando and Bhujia).**

What is the Baiga Tribe?

The Baiga (means sorcerers) tribe mainly lives in Chhattisgarh, Jharkhand, Bihar, Odisha, West Bengal, Madhya Pradesh and Uttar Pradesh.

- Traditionally, the Baiga lived a semi-nomadic life and practised slash and burn cultivation. Now, they are mainly dependent on **minor forest produce** for their livelihood.
 - Bamboo is the primary resource.
- Tattooing is an integral part of Baiga culture, every age and body part has a specific tattoo reserved for the occasion.



What are Habitat Rights?

➤ About:

- Habitat rights recognition provides the community concerned **rights over their customary territory of habitation**, socio-cultural practices, economic and livelihood means, intellectual knowledge of biodiversity and ecology, traditional knowledge of use of natural resources, as well as **protection and conservation of their natural and cultural heritage**.
- Habitat rights **safeguard and promote traditional livelihood** and ecological knowledge passed down through generations. They also help **converge different government schemes and initiatives from various departments** to empower PVTG communities to develop their habitats.

- According to the FRA, “habitat” includes customary habitats and those in reserved and protected forests of PVTGs and other forest-dwelling Scheduled Tribes.

- Out of 75 PVTG in India, **only three have habitat rights- the Bharia PVTG in Madhya Pradesh was the first**, followed by the Kamar tribe and now the Baiga tribe in Chhattisgarh.

➤ Procedure of Declaring Habitat:

- The procedure is based on a detailed guideline given for this purpose in 2014 by the Ministry of Tribal Affairs.
- The process **involves consultation with traditional tribal leaders** to determine the extent of culture, traditions, and occupation.

Note:



drishti

- Coordination between state-level departments, including Forest, Revenue, Tribal, and Panchayati Raj, and with the UNDP team is essential for defining and declaring habitats.
- **Legality:**
 - Habitat rights are granted to PVTGs under Section 3(1)(e) of the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006** (also known as FRA).
 - The recognition of Habitat rights grants PVTGs possession over their customary territory, encompassing habitation, economic and livelihood means, biodiversity knowledge.

Identification of PVTGs

- PVTGs are identified based on criteria such as **technological backwardness**, stagnant or declining population growth, **low literacy levels**, subsistence economy, and challenging living conditions.
- They face vulnerability in **health, education, nutrition, and livelihood**.
- The Ministry of Tribal Affairs has identified **75 PVTGs in 18 states and one Union Territory**.
- In 1973, the **Dhebar Commission created Primitive Tribal Groups (PTGs)** as a separate category, who are less developed among the tribal groups. In 2006, the Government of India renamed the PTGs as PVTGs.

What is the Significance of Granting Habitat Rights?

- **Preservation of Culture and Heritage:**
 - Granting tribal rights helps in preserving the unique cultural, social, and traditional heritage of tribal communities. It allows them to **maintain their distinct languages, rituals, customs, and traditional knowledge systems**.
- **Empowerment and Social Justice:**
 - Tribal rights empower these communities by providing them with legal recognition, ensuring their participation in decision-making processes that affect their lives, and rectifying historical injustices. This empowerment contributes to a more just and equal society.
- **Protection of Livelihoods:**
 - Many tribal communities depend on their natural surroundings for their livelihoods. Granting rights over lands and resources ensures that **they can**

sustain their traditional occupations like hunting, gathering, fishing, and farming, supporting their economic well-being.

➤ Sustainable Development:

- By granting rights to tribal communities, governments can **promote sustainable development**. Indigenous practices often prioritize sustainability and conservation, which is crucial for the environment and the overall well-being of society.

➤ Conservation of Biodiversity:

- Tribal communities often possess unique knowledge about their local ecosystems, flora, fauna, and sustainable resource management. Recognizing their rights **allows for the preservation of biodiversity and sustainable management of natural resources.**

Global Hunger Index 2023

Why in News?

In the **Global Hunger Index 2023**, India ranked **111th out of 125 countries**, indicating a serious level of hunger.

- Neighboring countries, such as **Pakistan (102nd)**, **Bangladesh (81st)**, **Nepal (69th)**, and **Sri Lanka (60th)**, scored better than India.

What is the Global Hunger Index ?

➤ About:

- The **Global Hunger Index (GHI)** is a peer-reviewed report, published on an annual basis by **Concern Worldwide and Welthungerhilfe**.
- The GHI is a tool designed to comprehensively measure and track hunger at **global, regional, and national levels**, reflecting multiple dimensions of hunger over time.
 - The GHI score is calculated on a 100-point scale reflecting the severity of hunger - **0 is the best score (implies no hunger) and 100 is the worst**.

Note: **Concern Worldwide** is an **international humanitarian organization** dedicated to tackling poverty and suffering in the world's poorest countries.

- Welthungerhilfe is a **private aid organization in Germany**. It was established in **1962**, as the German section of the **"Freedom from Hunger Campaign"**.

Note:



drishti

➤ Calculation:

- Each country's GHI score is calculated based on a formula that combines **four indicators** that together capture the **multidimensional nature of hunger**:

- **Undernourishment**: The share of the population whose caloric intake is insufficient;
- **Child Stunting**: The share of children under the age of five who have low height for their age, reflecting chronic undernutrition;
- **Child Wasting**: The share of children under the age of five who have low weight for their height, reflecting acute undernutrition; and
- **Child Mortality**: The share of children who die before their fifth birthday, reflecting in part the fatal mix of inadequate nutrition and unhealthy environments.

➤ Alignment with Sustainable Development Goals (SDG):

- The prevalence of undernourishment is an indicator for **SDG 2.1**, focusing on ensuring access to safe, nutritious, and sufficient food for all.
- Child stunting and wasting rates are **indicators for SDG 2.2**, aiming to end all forms of malnutrition.
- Reducing preventable child deaths is an **SDG 3.2 goal**.

What are the Key Takeaways from GHI 2023?

➤ India's GHI Score:

○ Score Analysis:

- India's GHI score 2023 stands at **28.7**, categorized as **"serious"** on the GHI Severity of Hunger Scale.
 - This shows a slight improvement from its GHI 2015 score of **29.2**, which was also deemed serious.

- Also, compared to its alarming GHI scores of 38.4 in 2000 and 35.5 in 2008, India has made significant progress.

○ Related Data and References:

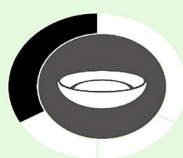
- Child stunting is prevalent at **35.5%** (India's **National Family Health Survey(NFHS) 2019-2021**)
- The prevalence of undernourishment in India is **16.6%** (State of Food Security and Nutrition in the World report 2023)
- India's child wasting rate is a concerning **18.7%** (India's NFHS 2019-21), the highest among all countries in the report.
- The under-five mortality rate stands at **3.1%** (United Nations Inter-Agency Group for Child Mortality Estimation January 2023)

➤ Global Hunger Trends:

- According to the GHI 2023 report, **Belarus, Bosnia & Herzegovina, Chile, China** are among the top ranked countries (i.e., low level of hunger) and **Yemen, Madagascar, Central African Republic** are the bottom.
- The **GHI 2023 score for the world is 18.3**, considered **moderate**, showing minimal improvement since 2015.
 - The prevalence of **undernourishment** has risen from 572 million to approximately **735 million people since 2017**.
- The GHI attributed the stagnation to various crises, including **climate change, conflicts, economic shocks, the Covid-19 pandemic, and the Russia-Ukraine war**.
 - These crises have exacerbated social and economic inequalities and hindered progress in reducing hunger worldwide.

COMPOSITION OF GHI SCORES AND SEVERITY DESIGNATIONS

Note: All indicator values are standardized.



1/3

Undernourishment

+



1/6

Child stunting

+



1/6

Child wasting

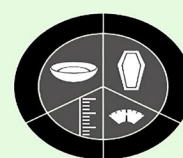
+



1/3

Child mortality

=



GHI SCORE

GHI Severity of Hunger Scale



100-point scale

Note:

What is the Indian

Government's Response to GHI Report 2023?

- **Criticism of Methodology:** The **Ministry of Women and Child Development** has raised concerns about the report's methodology, suggesting "**serious methodological issues**" and "**malafide intent**."
 - Data from the government's Poshan Tracker consistently shows **child wasting prevalence below 7.2%**, which contradicts the GHI's reported figure of **18.7%**.
- **Focus on Child Health:** The government noted that **three out of the four GHI indicators pertain to children's health** and may not provide a complete representation of the entire population.

- **Small Sample Size:** The government expressed doubts about the accuracy of the "**Proportion of Undernourished Population**" indicator, as it is based on a **small sample size opinion poll**.
- **Complex Factors:** The government's argument is that indicators like **stunting and wasting are outcomes of various complex factors**, including **sanitation, genetics, environment**, and food utilization, and are not **solely attributable to hunger**.
 - The government also pointed out that **child mortality may not solely be an outcome of hunger**, indicating that other factors are at play.

What are the Other Terms Related to Hunger?

Term	Definition
Undernourishment	<ul style="list-style-type: none"> ➤ It refers to Insufficient calorie intake to sustain a healthy life, as defined by the Food and Agriculture Organization of the United Nations. ➤ It is based on individual needs in terms of age, sex, stature, and physical activity.
Undernutrition	<ul style="list-style-type: none"> ➤ It extends beyond calories and encompasses deficiencies in energy, protein, and essential vitamins and minerals. ➤ Undernutrition results from inadequate food intake in terms of both quantity and quality, poor nutrient utilization due to infections or illnesses, or a combination of these factors.
Famine	<ul style="list-style-type: none"> ➤ It is a distinct condition defined by the UN as occurring when specific conditions are met: <ul style="list-style-type: none"> ○ when at least 20% of the population faces severe food shortages, ○ acute child malnutrition rates exceed 30%, ○ Two out of 10,000 people die from starvation or malnutrition-related diseases daily.

What are the Factors

Responsible for Hunger in India?

- **Socioeconomic Disparities and Poverty:** Widespread **poverty** and socioeconomic disparities are fundamental determinants of hunger in India.
 - Poverty leads to inadequate **food consumption and the inability to afford** essential nutritional and healthcare services.
- **Hidden Hunger:** India is experiencing a **severe micronutrient deficiency** (also known as hidden hunger).
 - There are several causes of this problem, including poor diet, disease, and a **failure to meet micronutrient needs during pregnancy and lactation**.

- **Inefficient Agricultural Practices and Food Distribution:** Inefficiencies in agricultural practices, including **suboptimal crop yields and post-harvest losses**, also contribute to insufficient food availability.
 - Furthermore, subsequent leakages in **food distribution and supply chain management restrict the flow of food to vulnerable populations**, resulting in food scarcity and higher prices, which disproportionately affect the poor.
- **Gender Inequality and Nutritional Disparities:** Gender-based disparities exacerbate the problem of hunger and malnutrition in India.
 - Women and girls often experience **unequal access to food within households**, receiving smaller portions or lower-quality diets.

Note:



- This inequity, **coupled with the demands of maternal and child care**, exposes them to higher nutritional risks, leading to chronic undernutrition.
- **Climate Change and Environmental Stressors:** India is susceptible to **climate change-related environmental stressors**, such as **changing weather patterns, extreme weather events, and natural disasters**.
 - These factors can disrupt agricultural production, leading to crop failures and food scarcity.
- **Lack of Audit for Nutritional Programmes:** Although a number of programmes with improving nutrition as their main component are planned in the country, there is **minimal or no nutritional audit mechanism at local governance level**.

What are the Indian

Government Initiatives to Address Hunger?

- **Eat Right India Movement**
- **POSHAN Abhiyan(National Nutrition Mission)**
- **Mid-day Meal (MDM) scheme**
- **Pradhan Mantri Matru Vandana Yojana**
- **National Food Security Act, 2013**
- **Mission Indradhanush**
- **Integrated Child Development Services (ICDS) Scheme**
- **PM Garib Kalyan Yojna**

Scheduled Areas in India

Why in News?

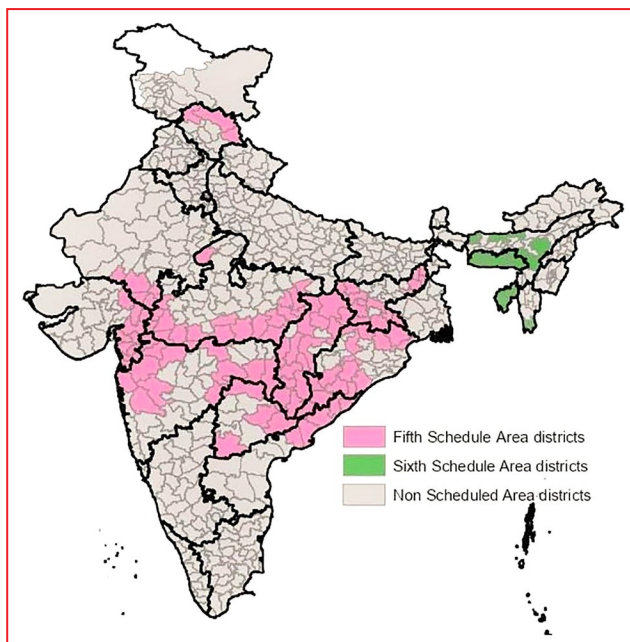
India's **Scheduled Tribes (STs)** constitute 8.6% of the population, residing in various states and union territories. **Article 244** of the Indian Constitution is a critical provision for the administration of Scheduled and Tribal Areas.

What are Scheduled Areas?

- **About:**
 - Scheduled Areas represent **regions covering 11.3% of India's land area**, inhabited by various **ST communities** comprising 8.6% of the country's population.
 - They are **designated in 10 states under the Fifth schedule:** Andhra Pradesh, Telangana, Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, Rajasthan, Gujarat, Maharashtra, and Himachal Pradesh.

- **4 States under the Sixth Schedule:** Assam, Meghalaya, Tripura and Mizoram.
- In 2015, Kerala proposed to **notify 2,133 habitations, five-gram panchayats, and two wards in five districts as Scheduled Areas**; it awaits the Union government's approval.
- **Criteria for Identification:**
 - The guiding norms for declaring an area as a Scheduled Area include **significant tribal population**, compactness, reasonable size, viability as an **administrative entity**, and economic backwardness compared to **neighboring areas**.
 - The 2002 Scheduled Areas and Scheduled Tribes Commission or the **Bhuria Commission** recommended considering areas with **40% or more tribal population according to the 1951 Census as Scheduled Areas**.
- **Constitutional Provisions and Governance:**
 - **Article 244 (1)** applies the **Fifth Schedule** provisions to Scheduled Areas in states other than Assam, Meghalaya, Tripura, and Mizoram.
 - **Article 244 (2)** applies the **Sixth Schedule** to the aforementioned states.
 - **Tribal Advisory Council:** The President of India notifies Scheduled Areas, and states with Scheduled Areas establish a **Tribal Advisory Council** to advise the Governor on ST welfare matters.
 - **Panchayats (Extension to Scheduled Areas) Act (PESA) of 1996:** It empowers gram sabhas, **granting them substantial authority through direct democracy**, prioritizing **Local Self-Governance**.
 - In 1995, the **Bhuria Committee**, constituted to recommend provisions for the extension of panchayat raj to Scheduled Areas, recommended including these villages, but this is yet to be done.
 - The President of India notifies **India's Scheduled Areas**. States with **Scheduled Areas need to constitute a Tribal Advisory Council** with up to 20 ST members.
 - They will advise the **Governor on matters referred to them regarding ST welfare**. The Governor will then submit a report every year to the president regarding the administration of Scheduled Areas.

Note:



What are the Concerns Related to Scheduled Areas?

- Despite demands from Adivasi organizations, a **significant portion (59%) of India's ST population is outside the purview of Article 244**, denying them rights protected under laws applicable to **Scheduled Areas**.
- The **absence of viable ST-majority administrative units** has been a common bureaucratic response, which has further led to demands for the denotification of parts of Scheduled Areas.
 - They are denied rights under the laws applicable to Scheduled Areas, including the **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013** and the **Biological Diversity Act 2002**.

What are the Provisions Related to STs in India?

- **Definition:**
 - The Constitution of India does not define the criteria for recognition of STs. As per **Census-1931**, STs are termed as "backward tribes" living in the "**Excluded**" and "**Partially Excluded**" areas.
 - The **Government of India Act of 1935** called for the first time for representatives of "backward tribes" in provincial assemblies.
- **Constitutional Provisions:**
 - **Article 366(25):** It only provides a process to define STs:

- "STs means such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this Constitution."

➤ **Statutory Provisions:**

- Protection of Civil Rights Act, 1955 against Untouchability.
- **Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989.**
- **Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996.**
- **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.**

World Mental Health Day

Why in News?

10th October marks **World Mental Health Day**, a global initiative aimed at raising awareness about **mental health issues** and rallying support for mental health care worldwide.

- In the context of India, this day **serves as a crucial reminder of the urgent need to address the mental health challenges** faced by the country's **burgeoning adolescent population** (aged 10-19 years) which plays a pivotal role in its future prosperity and development.
- **Theme for World Mental Health Day 2023:** Mental health is a universal human right.

Note: World Mental Health Day was established on **10th October, 1992** by the **World Federation for Mental Health**. Since then, it has been observed every year.

What is the Status of Mental Healthcare in India?

- **About:**
 - Mental health refers to a **person's emotional, psychological, and social well-being**, encompassing their overall mental and emotional state.
 - It involves a person's ability to cope with **stress, manage their emotions**, maintain healthy relationships, work productively, and make rational decisions.

Note:

- Mental health is an integral part of overall health and well-being, **just as important as physical health.**

➤ **Status in India:**

- In India, according to **National Institute of Mental Health and Neuro-Sciences** data, more than **80% of people do not access care services** for a multitude of reasons, ranging from **lack of knowledge, stigma and high cost of care.**
- The economic loss due to mental health conditions, between 2012-2030, is estimated at **USD 1.03 trillion (WHO).**

➤ **Government Initiatives Related to Mental Health:**

- **National Mental Health Programme (NMHP)**
- **Ayushman Bharat – Health and Wellness Centres (AB-HWC)**
- **National Tele Mental Health Programme**
- **Kiran Helpline**
- **Rashtriya Kishor Swasthya Karyakram**
- **Yuva Spandana Yojana (Karnataka)**

➤ **Issues Surrounding Mental Health in India:**

- **Limited Accessibility to Mental Healthcare:** There is a shortage of mental health professionals in India, particularly in rural areas.
 - This scarcity results in **unequal access to mental health services**, with urban areas having more resources than rural ones.
- **Stigma and Lack of Awareness:** Mental health issues in India are often stigmatized and misunderstood.
 - Many individuals and families **hesitate to seek help due to fear of societal discrimination** and lack of awareness about mental health conditions.
- **Vulnerability of Adolescents to Mental Health Challenges:** Adolescence marks the **transition from childhood to adulthood**, laden with unique challenges, including **body image issues and societal expectations.**
 - **Academic pressure, peer influence, and concerns about the future** can significantly affect mental health during adolescence.
 - In India, adolescents with a reported prevalence of severe mental illness stands at **7.3%.**
- **Gender Disparities:** Gender plays a significant role in mental health disparities.

- **Women in India** may face higher rates of **depression, anxiety, and domestic violence**, and they often have limited autonomy in seeking help.

- According to recent report of NCRB, **housewives constituted 50% of total suicides** in India in 2021.

- **Economic Factors: Poverty and economic inequality** can exacerbate mental health issues.

- The stress of financial instability and limited educational opportunities can contribute to mental health problems.

- **Online and Social Media Influences:** The influence of social media and online content on mental health is a growing concern.

- **Cyberbullying, social comparison, and the spread of misinformation** can negatively impact mental well-being.

- **Aging Population and Geriatric Mental Health:** India's **aging population** is growing, and there is a need for better **mental health support for the elderly.**

- **Loneliness, depression, and dementia** are common concerns among older adults.

- **Disaster and Trauma:** Natural disasters and other traumatic events can have lasting effects on mental health.

- India is prone to disasters like **floods and earthquakes**, which can lead to trauma and **post-traumatic stress disorder (PTSD).**

Concerns of Caste-Based Discrimination

Why in News?

The recent directive by the Patan District Collector, mandating the transfer of all ration cards from a Dalit-run **Fair Price Shop (FPS)** in Kanosan village to a neighboring village, raises important ethical and constitutional questions.

What is a Fair Price Shop (FPS)?

- FPS is a government-run or government-regulated retail outlet or store in India.
- The primary purpose of fair price shops is to **distribute essential commodities like food grains, edible oils, sugar, and other basic necessities** to the public at subsidized or fair prices.

Note:



drishti

- These shops are typically part of **government welfare programs** aimed at ensuring **food security and reducing the economic burden on low-income households**.
- This system has a robust mechanism for verification of beneficiaries through **Aadhaar authentication** and has features to monitor transactions online with the help of **electronic Point of Sale (e-POS)** machines.
- The **e-PoS devices have been integrated with electronic weighing machines** to ensure the beneficiaries get the correct amount of ration.
- These FPSs and ePOS machines have proved instrumental in the effectuation and seamless implementation of the **One Nation One Ration Card Scheme (ONORC)**.

What are the Different Ethical Aspects Involved in the Incident?

➤ **Ethical Issues:**

- **Discrimination and Social Equity**
 - The core ethical issue in this case is **discrimination** based on caste leading to the transfer of ration cards.
- **Dereliction of Duty:**
 - The district collector's directive to transfer ration cards can be seen as a **dereliction of duty**.
 - The ethical principle of **integrity**, where public officials are expected to act in the best interest of all citizens without favoritism should be practiced.
- **Mental Health and Well-being**
 - The mental trauma experienced by, the victim of caste-based discrimination, leading to a **suicide attempt and physical injury**, is a significant ethical concern.
 - Ethical principles of **compassion, empathy, and the duty to protect individuals' well-being** become important.
- **Use of Legal Framework**
 - The convenors of the **Right to Food Campaign** call for the application of legal frameworks like the SC/ST Act and National Food Security Act.
 - Ethical principle of **upholding the rule of law and respecting the constitution** should be abided by.

- **Empowerment of Marginalized Communities**
 - The violation of the mandated principles related to the empowerment of **marginalized communities** is a key ethical concern.
 - Ethical principles of **fairness, equity, and non-discrimination, justice and equality** should be adhered to.
- **Moral Responsibility**
 - The **moral responsibility** of the district collector and the upper caste households in addressing the consequences of their actions is raised.

What are the Other Perspectives of the Incident?

➤ **Violation of Constitutional Mandates:**

- The Indian Constitution enshrines fundamental values of **equality, justice, and non-discrimination** as enshrined under **Fundamental Rights (FRs) in Part-III (Article 17)** of the Constitution.
- **Discriminatory actions** such as actions based on caste **contradict these constitutional principles**

➤ **Violation of Statutory Mandates:**

- Non-implementation of Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989 (Amended 2015):
 - The discriminatory treatment of a Scheduled Caste person falls under the purview of **SC/ST Act, 1989** which aims to prevent and punish atrocities against marginalized communities.
 - It emphasizes the **need for strict action against caste-based discrimination and violence**.
- **National Food Security Act:**
 - The act upholds the democratic empowerment of FPSs in villages, advocating for distribution control to marginalized communities.
 - The **transfer of ration shops to another FPS violates the spirit of this legislation**.

What Action Could be Taken in the Similar Situations?

➤ **Preventive Steps:**

- **Raising Awareness:**
 - Model of **Mid-Day Meals Scheme** implementation can be adopted where high dignitaries eat the cooked food to bust the myths of **caste-stigma and discrimination**.

Note:



drishti

➤ **Punitive Action:**

- Further legal action must be taken to address the **caste-based discrimination and social boycott effectively**.
 - Linking such erroneous activities with **Annual Confidential Reports** of Bureaucrats such that it acts as a deterrence in the future.

○ **License Revocation:**

- The impending **revocation of the Dalit FPS dealer's license** raises concerns about economic repercussions and livelihoods.

➤ **Call for Suo Motu Cognizance:**

- The Right to Food Campaign urges the **High Courts or Chief Minister's Office** of the government to **take Suo Motu cognizance** of the discriminatory ration card transfers.
- Such action is essential to **uphold the rule of law and constitutional values**.

➤ **Democratic Empowerment and Inclusivity:**

- **Role of Fair Price Shops (FPSs):**
 - FPSs play a crucial role in **ensuring food security and access to essential commodities** for marginalized communities.
 - Democratic empowerment of FPSs is **vital to promote inclusivity and economic well-being**.

Recognising the Heterogeneity of Northeast India

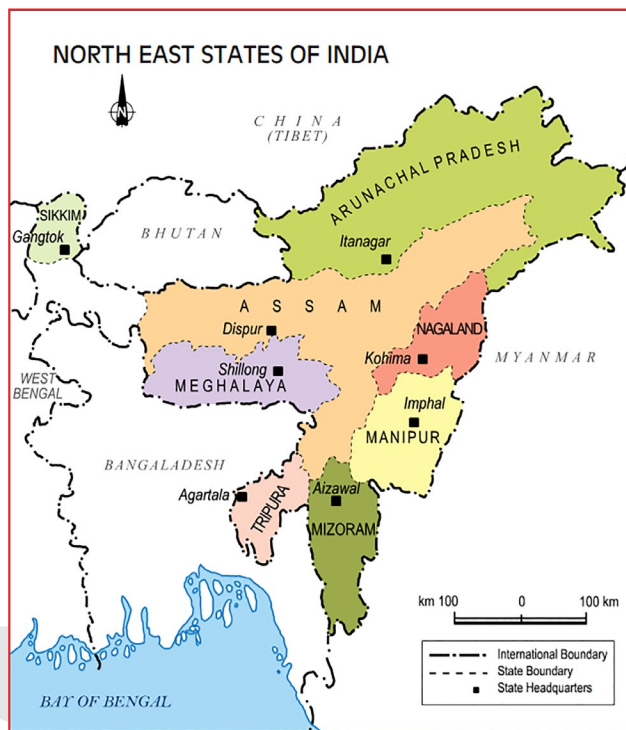
Why in News?

The Northeast region is home to **numerous ethnic communities** who have migrated from "all points of the compass, making it important to reject a **singular Northeast identity** and emphasizing its **rich linguistic, cultural, and ethnic diversity**.

What is the Ethnic Composition of the North-East?

➤ **Ethnic Composition:**

- The region is home to numerous ethnic communities, predominantly belonging to the **Indo-Chinese Mongoloid racial grouping**.
- Northeast India is known for its diverse population, which is made up of over 200 different ethnic groups, **each with its own distinct culture and traditions**.



- Some of the major ethnic groups in the region include the Assamese, Bodos, Nagas, Mizos, Khasis, Garos, and Arunachalis.

State	Ethnic Groups
Arunachal Pradesh	Adis, Nyishi, Apatani, Tagin, Mismi, Khampti, Wancho, Tangsha, Monpa, etc.
Assam	Barmans, Bodos (Bodokacharis), Deori, Hojai, Sonowal Kacharis, Miri (Mising), Dimasa, Hajong, etc.
Meghalaya	The Khasis, the Garos, Jaintias, etc.
Manipur	Meities, Nagas, Kukis and Chins, Meitei Pangals (Meitei –Muslims) etc.
Mizoram	Lushei, Ralte, Hmar, Paite, Pawis (formerly known as Lais), etc.
Nagaland	Angami, Ao, Chang, Chiru, Phom, Rengma, Sangtam, Sema, Zeliang, etc.
Tripura	Tripuri, Reang, Chakma, Halam, Garo, Lusei, Darlong, etc.
Sikkim	Nepalis, Bhutias, Lepchas, etc.

- The region is also home to **several indigenous communities** that have managed to preserve their way of life, despite the rapid modernization taking place in other parts of India.

Note:



drishti

- These communities include the **Apatanis of Arunachal Pradesh**, who practice a unique form of agriculture that involves cultivating rice on terraced fields, and the **Khasi people of Meghalaya**, who have a **matrilineal society** where women inherit property and have a central role in decision-making.

➤ **Need for Rejecting Homogeneity of the Region:**

- The tendency to homogenize the Northeast into a single category is a **fallacy that overlooks the intricate fabric** of its society.
- Such a view not only oversimplifies the reality but also perpetuates **misunderstanding and misrepresentation**.
- Each state within the Northeast holds a **distinct cultural heritage, language, and historical narrative**.
- By rejecting a monolithic identity of the region one can delve into the unique **characteristics of each state and community**, appreciating the richness that this diversity brings.

Why is it Important to

Recognise Heterogeneity of the North-East?

➤ **Preserving Cultural Heritage:**

- The diverse cultural tapestry of the Northeast is a testament to the historical roots and practices of its various communities.
- From the vibrant festivals of **Assam to the ancient traditions of Sikkim**, each culture offers a **unique perspective on life, values, and beliefs**. Preserving and celebrating this heterogeneity ensures the safeguarding of these cultural legacies for future generations.

➤ **Linguistic Identity:**

- Northeast region is home to a **plethora of languages**, each representing the **nuanced worldview of its speakers**.
- By recognizing this **linguistic heterogeneity**, the distinctiveness of these languages and the communities that speak them can be honored.

➤ **Social Cohesion:**

- Acknowledging the diversity within the **Northeast promotes social cohesion and inclusivity**.
- It encourages a **sense of unity amid differences**, enabling a more harmonious coexistence. By understanding and appreciating the distinct backgrounds and experiences of various

communities, social integration is enhanced, contributing to a stronger, united nation.

➤ **Tailored Policies for Development:**

- A one-size-fits-all approach is **ineffective and unfair**, hampering the region's progress.
- Tailored policies that consider the unique socio-economic, cultural, and historical contexts can foster **sustainable development and growth**.

Note: Descriptive Nicknames for Northeast States

- Arunachal Pradesh: Dawn-lit Mountains
- Assam: Gateway to North East
- Manipur: Jewel of India
- Meghalaya: Abode of Clouds
- Mizoram: Land of Blue Mountains
- Nagaland: Land of Festivals
- Sikkim: Himalayan Paradise
- Tripura: Land of Diversity

Caste-Census in Bihar

Why in News?

Recently, the Government of the State of Bihar released findings of the **Caste Survey, 2023** which revealed that **Other Backward Classes (OBCs)** and **Extremely Backward Classes (EBCs)** together **constitute 63 %** of the state's total population.

- The findings are supposed to have wider connotations in the State and National Elections and also in the identification of intended beneficiaries for various welfare schemes.

What are the Key Findings of the Bihar Caste Survey?

Different Castes and Communities (Bihar)	Percentage Population (%)
Extremely Backward Classes (EBCs)	36.01 %
Other Backward Classes (OBCs)	27.12 %
Scheduled Castes	19.65 %
Scheduled Tribes	1.68%
Buddhists, Christians, Sikhs and Jains	< 1 %
Total Population (Bihar)	13.07 crores

Note:

What was the procedure adopted in the Caste Survey?

The survey was carried out in two phases, which each had its own criteria and objectives.

➤ First Phase:

- During this phase, the **number of all households** in Bihar were counted and recorded.
- Enumerators were given a **set of 17 questions** which were to be mandatorily answered by the respondent.

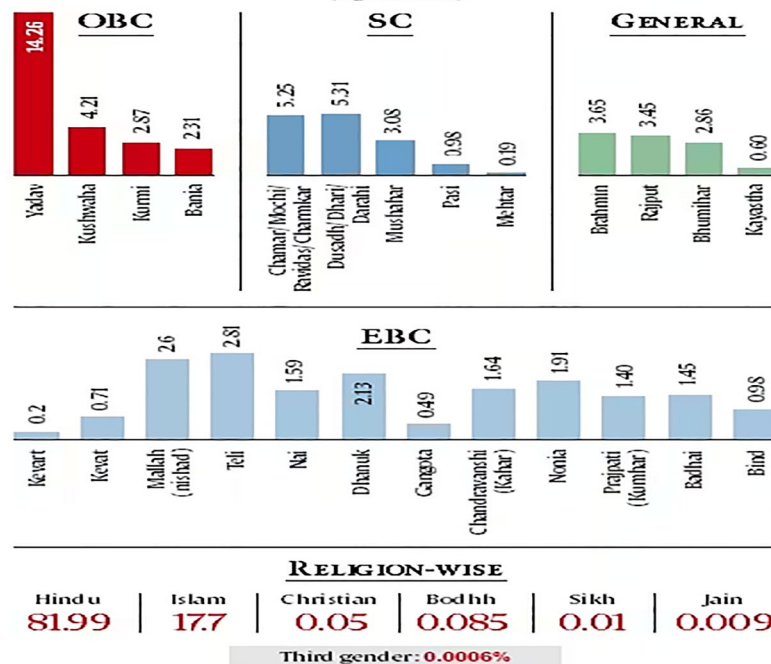
➤ Second Phase:

- During this phase data on people living in the **households, their castes, sub-castes, and socio-economic conditions** were collected.
- However, filling the **Aadhaar** number, caste certificate number and ration card number of the head of the family, were optional.

TELLING NUMBERS

How major groups stack up in Bihar

(figures in %)



What is the Significance of the Bihar Caste Survey Findings?

➤ Increasing the OBC Quota:

- The survey results will amplify the clamour for increasing the **OBC quota beyond 27%**, and for a quota within quota for the EBCs.
 - The **Justice Rohini Commission**, which has been examining the question of **sub-categorisation of OBCs since 2017**, submitted its report and recommendations are not yet made public.

➤ Redrawing of 50% Reservation Ceiling:

- The survey data will also reopen the debate over the **50% ceiling** on reservation imposed by the Supreme Court in its landmark ruling in **Indra Sawhney v Union of India (1992)**.
 - Depending upon the population of OBCs, the demand for increase in reservation quota in proportion to that of the population can arise from different quarters of the caste groups.

➤ Fulfilment of Constitutional Obligations:

- Caste Survey will help attain the objectives as enunciated in **Directive Principles of State Policies (DPSPs)** as mentioned in **Part IV** of the constitution.

- This will majorly help achieve the socio-economic objectives as outlined by the Constitution drafters.

➤ Realisation of Sarvodaya:

- Caste Census can be properly utilised to develop targeted measures so as to reduce rampant inequality across the State and promote equity and social justice in the long term.

What are the Issues With the Caste Census?

➤ Repercussions of a Caste Census:

- Caste has an emotive element and thus there exist the political and social repercussions of a caste census.
- There have been concerns that counting caste may help solidify or harden identities.
- Due to these repercussions, nearly a decade after the **SECC**, a sizable amount of its data remains unreleased or released only in parts.

➤ Caste is Context-specific:

- Caste has never been a proxy for class or deprivation in India; it constitutes a distinct kind of embedded discrimination that often transcends class.

Note:

○ **For example:**

- People with Dalit last names are less likely to be called for job interviews even when their qualifications are better than that of an upper-caste candidate.
- They are also less likely to be accepted as tenants by landlords.
- Marriage to a well-educated, well-off Dalit man still sparks violent reprisals among the families of upper-caste women every day across the country.

When was the last Caste Census Conducted in India?

➤ **Caste Census of 1931:**

- The last caste census was **conducted in 1931**, and data was made publicly available by the British Government of the day.
- This caste census became the basis for the implementation of **Mandal Commission Reports** and subsequent reservation policies by the government for **Other Backward Classes**.

➤ **Census of 2011:**

- The Census of 2011 became the first time to collect Caste-based data after independence.
- However, the data related to caste were not made public due to fear of political favouritism and opportunism.

What is the Census?

➤ **Origin of Census:**

- The origin of the Census in India **goes back to the colonial exercise of 1881**.
- Census has evolved and been used by the government, policymakers, academics, and others to capture the Indian population, access resources, map social change, **delimitation exercise**, etc.

➤ **First Caste Census as SECC (Socio-Economic and Caste Census):**

- SECC was **conducted for the first time in 1931**.
- SECC is meant to canvass every Indian family, both in rural and urban India, and ask about their:
 - **Economic status**, so as to allow Central and State authorities to come up with a range of indicators of deprivation, permutations, and combinations of which could be used by each authority to define a poor or deprived person.
 - It is also meant to ask every person their **specific caste name** to allow the government to **re-evaluate which caste groups** were economically worse off and which were better off.

➤ **Difference Between Census & SECC:**

- The Census provides a **portrait of the Indian population**, while the SECC is a tool to identify beneficiaries of state support.
- Since the **Census falls under the Census Act of 1948**, all data are considered confidential, whereas according to the SECC website, "all the personal information given in the SECC is open for use by Government departments to grant and/or restrict benefits to households."



Note:



drishti

Science & Technology

Highlights

- Global Innovation Index 2023
- Quantum-Technology Backed Green Hydrogen Production
- Emergence of Multimodal AIs
- Uterus Transplantation
- Myths Regarding Microbiome Research
- World Health Organization's Specs 2030
- Nobel Prize in Chemistry 2023
- R21/Matrix-M Malaria Vaccine
- Nobel Prize in Physics 2023
- Nobel Prize in Medicine 2023
- Digital World of Cookies
- Cholera
- Measles

GLOBAL INNOVATION INDEX (GII) 2023

GII is a leading reference for measuring an economy's innovation ecosystem performance.

RELEASED BY

- World Intellectual Property Organisation (WIPO)

GII is published annually without any base year.

INDICATORS

- Institutions
- Human Capital and Research
- Infrastructure
- Market Sophistication
- Business Sophistication
- Knowledge and Technology Outputs
- Create Outputs

4 KEY STAGES IN THE INNOVATION CYCLE

- Science and innovation investment
- Technological progress
- Technology adoption
- Socio-Economic impact

TOP 5 COUNTRIES

- Switzerland, Sweden, US, UK, and Singapore

BOTTOM 5 COUNTRIES

- Guinea, Mali, Burundi, Niger and Angola

INDIA'S RANKING

- 40th (same as GII 2022)
- In 2015, India stood at the 81st spot

India's Performance in GII 2023

- India has been an "innovation achiever" for 13 years
- Ranks:**
 - 1st among 37 Lower-Middle Income Countries and in Central and S Asia
 - 9th position in unicorn valuation with 5.04% of GDP
 - 10th in domestic industry diversification
 - 11th globally with 34% tertiary graduates in science and engineering
 - 35th in innovation outputs
- Areas with Need of Improvement:**
 - Infrastructure (84th rank)
 - Business sophistication (57)
 - Institutions (56)



Note:

Global Innovation Index 2023

Why in News?

India retains **40th rank out of 132 economies** in the **Global Innovation Index 2023** rankings published by the **World Intellectual Property Organization (WIPO)**.

- The 2023 edition reveals the ranking of **this year's most innovative economies** in the world amongst 132 economies and localizes the top 100 science and technology innovation clusters.

Note: GII is a **leading reference for measuring an economy's innovation** ecosystem performance. Published annually, it is also a valuable benchmarking tool used by policymakers, business leaders, and other stakeholders to assess progress in innovation over time.

What is WIPO?

- WIPO is the global forum for **Intellectual Property (IP) services**, policy, information and cooperation.
- It is a self-funding agency of the **United Nations**, with 193 member states.
- Its aim is to lead the development of a balanced and effective international IP system that enables innovation and creativity for the benefit of all.
- Its mandate, governing bodies and procedures are set out in the WIPO Convention, which established WIPO in 1967.

What are the Key Highlights of the Index?

- **Most Innovative Economies in 2023:**
 - Switzerland is the most innovative economy in 2023 **followed by Sweden**, the United States, the United Kingdom and Singapore.
 - Singapore has **entered the top five**, and has taken the leading position among **South East Asia, East Asia and Oceania (SEAO) region** economies.
- **Top Science and Technology (S&T) Clusters in the World:**
 - The top Science and Technology innovation clusters in the world in 2023 are **Tokyo–Yokohama, followed by Shenzhen–Hong Kong–Guangzhou**, Seoul, Beijing and Shanghai–Suzhou.
 - S&T clusters are the areas in the world where the highest density of inventors and scientific authors are located.

- China now has the **largest number of clusters in the world**, overtaking the United States.

What are the Key Highlights Related to India?

➤ Overall Ranking and Growth:

- India secured the **40th position** in the latest GII 2023, showcasing a **remarkable climb from the 81th spot in 2015**.
- This ascent underscores **India's consistent and substantial growth in innovation** over the past eight years.
- India secured the **top position among the 37 lower-middle-income countries** and leading among the 10 economies in Central and South America.
- Key indicators affirmed India's robust innovation landscape, including significant rankings in ICT services exports, venture capital received, graduates in science and engineering, and global corporate R&D investors.

➤ S&T Clusters:

- Compared to **China's 24 and US's 21**, India has only 4 S&T clusters among the world's top 100. These are **Chennai, Bengaluru, Mumbai and Delhi**.

➤ India's Progress:

- India's progress is attributed to its **abundant knowledge capital** and a thriving **Startup Ecosystem**, along with commendable efforts from public and private research organizations.
- The **Covid-19** pandemic emphasized the **vital role of innovation in addressing challenges**, aligning with the nation's vision of Atma Nirbhar Bharat (Self-reliant India).

➤ Need for Improvement:

- Certain areas necessitate improvement, particularly **infrastructure, business sophistication, and institutions**.
- To bridge these gaps, **NITI Aayog** is actively working to promote policy-led innovation in crucial sectors such as electric vehicles, biotechnology, nanotechnology, space, and alternative energy sources.

What are the Initiatives Related to Innovation in India?

- **Digital India**
- **Unified Payments Interface (UPI)**
- **National Education Policy**
- **Atal Tinkering Labs**

Note:

Quantum-Technology Backed Green Hydrogen Production

Why in News?

Recently, a new High Throughput **Quantum Backed Green Hydrogen** Production Technology that could promote **green hydrogen** production in bulk has been developed by Green Keplerate Team from Banaras Hindu University, **which will help achieve the National Green Hydrogen Mission.**

What is the Technology Developed?

➤ About:

- The technology developed showcases the uses of Green Hydrogen as eco-friendly energy alternatives. They introduced **next-generation quantum-powered photo-catalyst with a charge transfer system** coupled with high proton availability and mobility, and delivered quantum catalytic applications for energy generation.

➤ Features:

- The state-of-the-art **photochemical-reactor design features built-in illumination assembly and external concave reflective panels** to maximize the capture of solar energy.
- The team has engineered a **continuous electron coupled proton supply system**, propelled with an **electron injector mechanism** utilizing industrial metal-waste, which ensures the peak rate of Green Hydrogen production at lab scale.

➤ Significance:

- Due to the high purity of the hydrogen gas produced, **the fuel can be used without additional purification**, thus enhancing the **cost-effectiveness** of the technology.
- This transformative innovation would offer wide ranging application possibilities across various sectors **ranging from energy production to applications in transportation and agriculture.**

Quantum Technology

- Quantum Technology is based on the principles of **Quantum mechanics** that was developed in the early 20th century to describe nature at the **scale of atoms and elementary particles.**
- The first phase of this revolutionary technology has provided the foundations of our understanding of the physical world, including the **interaction of light and matter**, and led to ubiquitous inventions such as lasers and **semiconductor** transistors.
- A second revolution is currently underway with the **goal of putting properties of quantum mechanics in the realms of computing.**
- Properties of Quantum Computing:
 - **Superposition:** One of the fundamental properties of quantum computing is **superposition**. In classical computing, a bit can be in one of two states, 0 or 1. **In quantum computing, a qubit can exist in a superposition of these states, meaning it can represent both 0 and 1 simultaneously. This property allows quantum computers to process a vast amount of information in parallel, making them highly efficient for certain types of calculations.**
 - **Entanglement:** **Quantum entanglement** is a phenomenon where the **quantum states of two or more qubits become correlated in such a way that the state of one qubit instantly affects the state of another**, even when they are separated by vast distances. Entanglement allows for the creation of quantum gates and algorithms that exploit this unique connection to perform complex operations and computations.
 - **Quantum Interference:** **Quantum interference** is a property that **arises from the superposition of qubits**. It allows quantum computers to combine and manipulate the probability amplitudes associated with different states to enhance the likelihood of obtaining the correct answer to a problem while reducing the likelihood of incorrect results.

Note:

National Green Hydrogen Mission

NATIONAL GREEN HYDROGEN MISSION

NODAL MINISTRY

- Ministry of New and Renewable Energy

OBJECTIVE

- Decarbonise energy/industrial/mobility sector
- Develop indigenous manufacturing capacities
- Create export opportunities for GH₂ and its derivative

COMPONENTS OF NGHM

- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)
- Strategic Hydrogen Innovation Partnership (SHIP) (PPP for R&D)

GH₂ is not commercially viable at present; current cost in India is around ₹350-400/kg.
The National Hydrogen Energy Mission aims to bring it down under ₹100/kg.

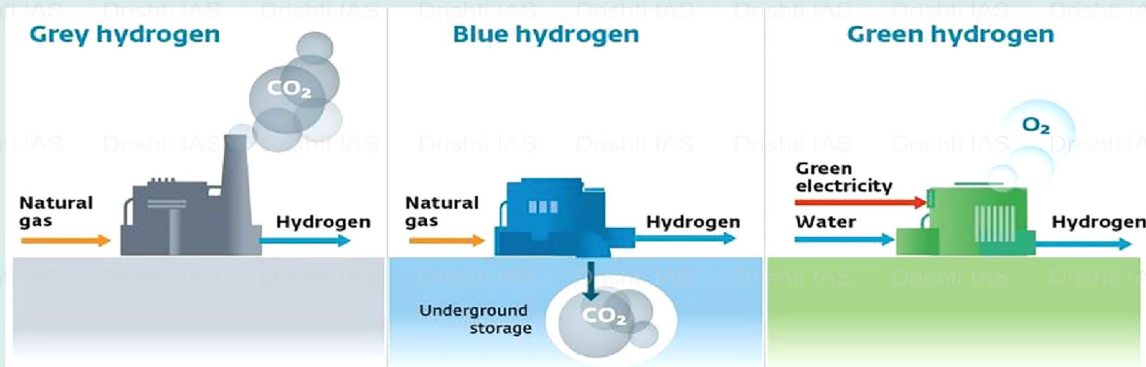
Expected Outcomes by 2030

- ◆ Atleast 5MMT GH₂ annual production
- ◆ Rs 1 lakh crore fossil fuel import savings
- ◆ 6 lakh jobs
- ◆ 50MMT CO₂ annual emissions averted
- ◆ ₹ 8 lakh crore investment

HYDROGEN AND GREEN HYDROGEN

Hydrogen is the most common element in nature but exists only in combination with other elements. It has to be extracted from naturally occurring compounds (like water).

Green Hydrogen (GH₂) is made by splitting water through an electrical process called electrolysis, using an electrolyser powered by renewable energy (RE).



Note:

Emergence of Multimodal AIs

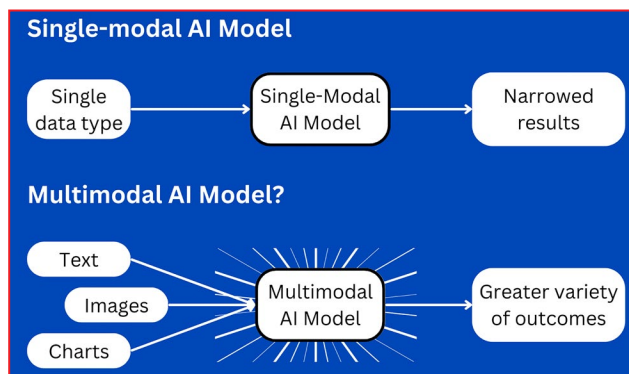
Why in News?

There has been a paradigm shift within **AI (Artificial Intelligence)** towards Multimodal Systems, allowing users to engage with AI through a combination of text, images, sounds, and videos.

- These systems aim to replicate human-like cognition by encompassing multiple sensory inputs.

What are Multimodal AI Systems?

- **About:**
 - Multimodal AI is artificial intelligence that combines **multiple types, or modes, of data to create more accurate determinations**, draw insightful conclusions or make more precise predictions about real-world problems.
 - Multimodal AI systems train with and use video, audio, speech, images, text and a range of traditional numerical data sets.
 - **For Example:** Multimodal audio systems follow **similar principles**, with Whisper, OpenAI's open-source speech-to-text translation model, **serving as the foundation for GPT's voice processing capabilities**.



- **Recent Developments in Multimodal AI:**
 - **OpenAI's ChatGPT:** OpenAI announced enhancements to its GPT-3.5 and GPT-4 models, allowing them to analyze images and engage in speech synthesis, enabling more immersive interactions with users.
 - It is working on a project named "Gobi," which aims to create a multimodal AI system from scratch, distinct from the GPT models.

➤ Google's Gemini Model:

- Another major player in the field is **Google's new yet-to-be-released multimodal large language model Gemini**.
- Due to its huge collection of images and videos from its search engine and YouTube, **Google had a clear edge over its rivals in the multimodal domain**.
- It puts immense pressure on other AI systems to rapidly advance their multimodal capabilities.

What are the Advantages of Multimodal AI over Unimodal AI?

- Multimodal AI, unlike unimodal AI, leverages **diverse data types such as text, images, and audio**, offering a richer representation of information.
- This approach enhances contextual understanding, resulting in more accurate predictions and informed decisions.
- By fusing data from **multiple modalities, multimodal AI achieves better performance**, increased robustness, and the ability to handle ambiguity effectively.
- It broadens **applicability across various domains and enables cross-modal learning**.
- Multimodal AI provides a more **holistic and human-like understanding of data**, paving the way for innovative applications and a deeper comprehension of complex real-world scenarios.

What are the Applications of Multimodal AI?

- It finds applications in **diverse fields, including autonomous driving, robotics, and medicine**.
 - For example, In medical field, the analysis of complex datasets from **CT Scans** and identifying genetic variations, simplifying the communication of results to medical professionals is very crucial.
- Speech translation models, such as Google Translate and Meta's SeamlessM4T, also **benefit from multimodality**, offering translation services across various languages and modalities.
- Recent developments include Meta's ImageBind, a multimodal system capable of processing text, visual data, audio, temperature, and movement readings.
 - The potential for integrating additional sensory data like touch, smell, speech, and brain MRI signals is explored, enabling **future AI systems to simulate complex environments**.

Note:

What are the Challenges of Multimodal AI?

- **Data Volume and Storage:**
 - The diverse and voluminous data required for **Multimodal AI poses challenges** in terms of data quality, storage costs, and redundancy management, making it expensive and resource-intensive.
- **Learning Nuance and Context:**
 - Teaching AI to **understand nuanced meanings** from identical input, especially in languages or expressions with context-dependent meanings, proves challenging without additional contextual cues like tone, facial expressions, or gestures.
- **Limited and Incomplete Data:**
 - Availability of complete and **easily accessible data sets is a challenge**. Public data sets may be limited, costly, or suffer from aggregation issues, affecting data integrity and bias in AI model training.
- **Missing Data Handling:**
 - Dependency on **data from multiple sources can result in AI malfunctions** or misinterpretations if any of the data sources are missing or malfunctioning, causing uncertainty in AI response.
- **Decision-Making Complexity:**
 - Neural networks in Multimodal AI may be complex and challenging to interpret, making it **difficult to understand how AI evaluates** data and makes decisions. This lack of transparency can hinder debugging and bias elimination efforts.

Uterus Transplantation

Why in News?

Recently, the United Kingdom's **first uterus transplant** was conducted, providing new hope for women facing reproductive challenges.

- India is one of a few countries to have had a successful uterine transplant; others include Turkey, Sweden, and the U.S.
- Doctors now **aim to reduce the surgery cost**, currently at Rs 15-17 lakh in India, and develop a bioengineered **artificial uterus** to simplify transplants and eliminate live donors for **ethical organ transplantation**.

What is a Uterus Transplant?

- **About:**
 - Unlike heart or liver transplants, uterus transplants aren't life-saving transplants. Instead, they are

more like limb or skin transplants – which **improve the quality of individuals' lives**.

- Uterus transplants **can help women who lack a uterus fulfill their reproductive needs**.
- The first live birth after a uterus transplant occurred in Sweden in 2014, marking a breakthrough in treating uterine factor infertility.
- **Steps Involved in a Uterus Transplant:**
 - The recipient undergoes thorough physical and mental health evaluations before the transplant.
 - The donor's uterus, whether from a live or deceased donor, is rigorously examined for viability.
 - Live donors undergo various tests, including **gynaecological examinations** and cancer screenings.
 - The procedure **doesn't connect the uterus to the fallopian tubes**, which ensures the ovum from the ovaries moves to the uterus – so the individual can't become pregnant through natural means.
 - Instead, doctors remove the recipient's ova, create **embryos using in vitro fertilization**, and **freeze them embryos (cryopreservation)**.
 - Once the newly transplanted uterus is 'ready', the doctors implant the embryos in the uterus.
 - Robot-assisted laparoscopy is used to precisely remove the donor's uterus, making the process less invasive.
 - After the transplantation procedure, the vital **uterine vasculature**(the network of **vessels connecting the heart to other organs and tissues** in the body) and other important linkages are methodically re-established.
- **Post-Transplant Pregnancy:**
 - **Success is determined in three stages:**
 - Monitoring **graft viability in the first three months**.
 - **Assessing uterus function** between six months to one year.
 - **Attempting pregnancy** with in vitro fertilization, but with higher risks like rejection or complications.
 - The final stage of success is a **successful childbirth**.
 - Frequent check-ups are essential due to potential risks like rejection, abortion, low birth weight, and premature birth.

Note:



drishti

➤ **Considerations and Side Effects:**

- **Immunosuppressant drugs** are necessary to prevent rejection but may cause side effects.
- Side effects include kidney and bone marrow toxicity and an increased risk of diabetes and cancer.
- For these concerns, the **uterus must be removed after successful childbirth** and regular follow-ups for at least a decade are recommended after childbirth.

Artificial Uteri:

- Researchers, at the University of Gothenburg, are working on **bioengineered uteri**. These are created using **stem cells** taken from a **woman's blood or bone marrow as a foundation for a 3D scaffold**.
 - Preliminary experiments with rats show promise.
- Artificial uteri could eliminate the need for live donors, addressing **ethical concerns** and reducing the **potential risks to healthy donors**.
- Artificial uteri could benefit women facing **infertility issues** as well as members of the **LGBTQ+ community**.
 - However, trans-women recipients may still need additional procedures, like castration (removing the testicles of a male animal or human) and hormone therapy.
 - Also, Ensuring consistent **blood flow to support a developing fetus** is a challenge in creating artificial uteri, as the **male body lacks the necessary structures for uterine and fetal development**.
- **Future Possibilities:**
 - Artificial uteri offer exciting possibilities for reproductive medicine but require further research and development before becoming a practical solution for human reproduction.

Myths Regarding Microbiome Research

Why in News?

In the last two decades, Microbiome Research has gone from a '**Niche subject area**' to '**one of the hottest topics** in all of science'.

- Microbial interactions and activities within the human gut have been a subject of extensive research and discussion.

- Contrary to popular misconceptions, recent assessments shed light on the complexity of the human microbiome, challenging certain widely believed claims.

Note

- Under the Union Budget 2021-22, the government outlaid Rs. 1,660 crore for biotechnology research and development.

What is Microbiome?➤ **About:**

- The **microbiome is the community of Microorganisms** (such as fungi, bacteria and viruses) that exists in **a particular environment**.
- In humans, the term is often **used to describe the microorganisms that live in or on a particular part of the body**, such as the skin or gastrointestinal tract.
- These groups of microorganisms are **dynamic and change in response to a host of environmental factors**, such as exercise, diet, medication and other exposures.

➤ **Myths Regarding Microbiome in Human Body:**

- **The Age of the Field:**
 - One of the misconceptions is that Microbiome Research is a new field. Scientists had described and **speculated on the benefits of bacteria inhabiting the gut**, such as *Escherichia coli* and *Bifidobacteria*, as early as the **late 19th and early 20th centuries itself**.
- **The Question of Origin:**
 - The term "microbiome" in its modern form was used before its popularization in 2001, challenging the common attribution to Joshua Lederberg.
 - Joshua Lederberg is a **Nobel laureate in medicine**, with the naming of the field in 2001.
 - The term had been used in 1988 to describe a community of microbes.
- **The Number and Mass of Microbes:**
 - Some of the more prevalent and more harmful myths **concern the size of the microbiome**.
 - The actual number of microbial cells in human feces is around 10^{10} to 10^{12} per gram, and the **weight of the human microbiota is about 200 grams**, not 1-2 kg as often stated.

Note:



drishti

○ From Mother to Child:

- Contrary to some opinions, mothers don't pass their microbiomes to their children at birth.
- Some **microorganisms are directly transferred during birth** but they constitute a small fraction of the human microbiota; and only an even smaller fraction of these microbes survive and persist throughout the child's life.
- Every adult ends up with a unique microbiota configuration, even identical twins that are raised in the same household.

○ Microbes are Dangerous:

- Some researchers have suggested that diseases are caused by undesirable interactions **between microbial communities and our cells**.
- But whether a microbe and its metabolite are 'good' or 'bad' depends on the context.
 - For example, **most humans carry a species of bacteria called *Clostridium difficile*** without any disease for life. It causes **problems only in the elderly or in people with compromised immune systems**.

○ The *Firmicutes-Bacteroidetes* Ratio:

- One myth correlates obesity with the **ratio of two phyla of bacteria — *Firmicutes* and *Bacteroidetes***.
- The problem with this myth is that the level of phyla is too broad to comment on effects with confidence.
 - A phylum is a group within a kingdom. In the descending order of classifying organisms, **a kingdom comprises different phyla; a phylum comprises classes; then there are orders, families, genres, and, finally, species**.
 - Even within a bacterial species, several strains behave differently, causing the host to manifest different clinical symptoms.

○ Functionality and Redundancy of Microbes:

- Not all microbes are functionally redundant; many functions are **specific to certain species within** the microbiome.
- Some researchers have claimed that different microbes are actually functionally redundant.
- However, the different bacteria in the human microbiome perform some common important functions, many functions are the preserve of

a few species.

○ Bias in Sequencing:

- Sequencing in microbiome research is not entirely unbiased; **biases can be introduced at various stages**, affecting the results and conclusions.

○ Standardized Methods in Microbiome Research:

- While standardized methods are important for comparing findings across studies, no methodology is perfect, and it is crucial to acknowledge the limitations of the chosen method.

○ Culturing the Microbiome:

- While it's challenging to **grow microbes from the human microbiome** in the lab, there have been successful efforts in the past, indicating that current gaps in culture collections are due to a lack of previous effort rather than inherent 'unculturability'.

How the Human Microbiome is Linked with Bodily Functions?

➤ Digestive Health and Nutrient Absorption:

- The gut microbiome, primarily in the intestines, **aids in breaking down complex carbohydrates, fibers, and other indigestible compounds** that the human body can't process on its own.
- **Microbes assist in the fermentation process**, producing essential nutrients such as vitamins (e.g., Vitamin B and K) that the body can absorb and utilize.

➤ Immune System Regulation:

- The microbiome interacts **closely with the immune system**, influencing its development, training, and responses.
- A well-balanced microbiome helps regulate immune responses, preventing inappropriate reactions and enhancing the ability to fight off infections.

➤ Metabolic Health and Weight Regulation:

- The composition of the gut microbiome has been linked to metabolic disorders like obesity and **type 2 diabetes**.
- Certain microbes **may affect metabolism**, energy extraction from food, and storage of fats, ultimately impacting body weight and metabolic health.

Note:



drishti

➤ Mental Health and Brain Function:

- The **gut-brain axis** represents the **bidirectional communication between the gut and the brain** through neural, hormonal, and immunological pathways.
- The gut **microbiome** can influence brain function, **behavior**, and mental health conditions such as anxiety, depression, and stress by producing neurotransmitters and interacting with the central nervous system.

World Health Organization's Specs 2030

Why in News?

Millions around the world suffer from **vision problems**, with a significant portion in need of spectacles. However, **access to eye care remains a challenge**, particularly in **low- and middle-income countries**.

- In response to this crisis, the **74th World Health Assembly, 2021** has embarked on an initiative called "**Specs 2030**" to provide integrated and **people-centered eye care**.

What is Specs 2030?

➤ About:

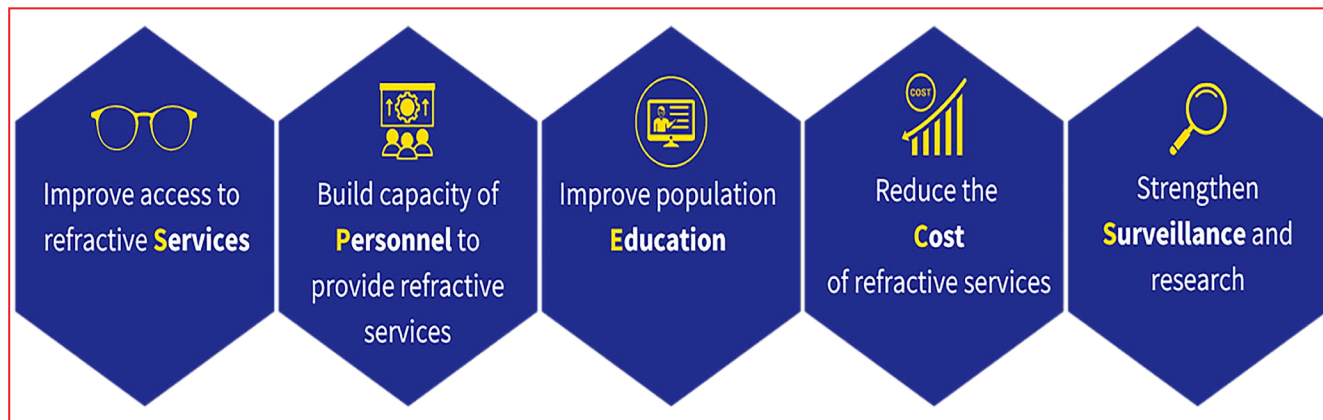
- The **World Health Organization (WHO)** is set to launch the SPECS 2030. The initiative's goal is to assist **member states in addressing the unmet need for spectacles** while ensuring the delivery of quality eye care.

➤ Vision:

- It envisions a world in which everyone who needs a **refractive error** intervention has access to **quality, affordable and people-centred refractive error services**.

➤ Mission:

- It has the mission to support Member States with the achievement of the 74th World Health Assembly endorsed **2030 target on effective refractive error coverage**.
- The initiative calls for coordinated global action amongst all stakeholders across 5 strategic pillars, in line with the letters of SPECS, to address the key challenges to improving refractive error coverage.



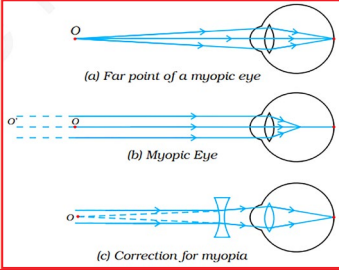
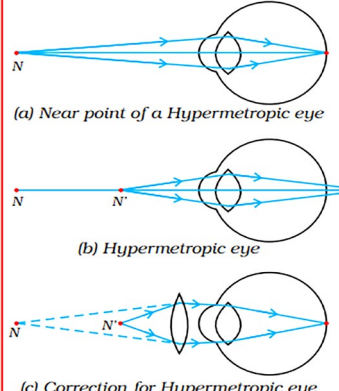
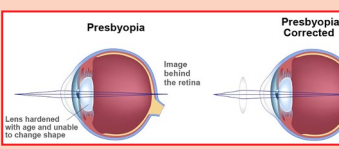
What is a Refractive Error of Vision?

➤ About:

- Refractive error of vision is a common eye condition that **affects the way light is focused on the retina (a light-sensitive layer of tissue in the back of your eye)**, leading to **blurred or distorted vision**.
- This condition can manifest in **various forms and severity levels**.

➤ Types of Refractive Errors:

Note:

Types of Refractive Errors	Description	Correction	
Myopia (Nearsightedness)	Difficulty seeing distant objects, clear near vision. Light focuses in front of the retina.	Corrected with a concave lens.	 <p>(a) Far point of a myopic eye</p> <p>(b) Myopic Eye</p> <p>(c) Correction for myopia</p>
Hypermetropia (Farsightedness)	Difficulty seeing nearby objects, relatively clear distant vision. Light focuses behind the retina.	Corrected with a convex lens.	 <p>(a) Near point of a Hypermetropic eye</p> <p>(b) Hypermetropic eye</p> <p>(c) Correction for Hypermetropic eye</p>
Presbyopia	Age-related difficulty focusing on close objects, typically around middle age.	Corrected with bifocal lenses (both convex and concave).	 <p>Presbyopia</p> <p>Presbyopia Corrected</p>
Astigmatism	Blurred or distorted vision at any distance. Irregular cornea or lens shape causes uneven light focus.	Corrected with a cylindrical lens.	

➤ **Symptoms of Refractive Errors:**

- The most common symptom is blurry vision. Other symptoms include Double vision, Hazy vision, Seeing a glare or halo around bright lights, Headaches, and Eye strain.

Other Types of Common Eye Defects/ Diseases:

- **Color Blindness (Color Vision Deficiency):**
 - The most common type of **color vision deficiency** makes it hard to tell the difference between red and green. Another type makes blue and yellow look the same.
- **Cataract:**
 - A cataract is a clouding of the lens of the eye, which is typically clear. It occurs when the structure of crystallin proteins that make up the lens in human eyes deteriorates.

➤ **Age-Related Macular Degeneration (AMD):**

- It is an eye disease that can **blur central vision**. It happens when **aging causes damage to the macula** — the part of the eye that controls sharp, straight-ahead vision. The macula is part of the retina (the light-sensitive tissue at the back of the eye).

➤ **Conjunctivitis (Pink Eye):**

- It is an eye condition characterized by inflammation of the conjunctiva, the thin membrane that covers the white part of the eye and lines the inner eyelids.

➤ **Glaucoma:**

- It is a **group of eye diseases that can cause vision loss and blindness** by damaging a nerve in the back of your eye called the **optic nerve**.

Note:



drishti

What is the Impact of Vision Impairment?

➤ The Global Vision Crisis:

- According to WHO, over **2.2 billion people globally suffer from compromised eyesight.**
- At least **1 billion of these cases could have been prevented** with access to proper eye care.
- A staggering **90% of individuals with vision impairment** or blindness reside in **low- and middle-income countries.**

➤ India's Urgent Need for Vision Care:

- India is facing a huge challenge of providing eye care and glasses to millions of people who suffer from vision impairment due to uncorrected refractive errors.
 - According to the WHO, **at least 100 million Indians need spectacles** but have no access to them.

➤ The Economic Impact of Vision Impairment:

- Vision impairment results in a significant global economic loss of approximately USD 410.7 billion.
- The cost of ensuring access to eye care and treatment for all is estimated at USD 24.8 billion, according to the WHO.

➤ The Alarming Rise of Myopia:

- Myopia is increasing globally. In China, the average onset of **myopia has shifted from 10.5 years to 7.5 years in just two decades.**
- East and South Asian countries, including Taiwan, Korea, China, Singapore, and Japan, are witnessing a significant surge in myopia cases.
- **By 2050, it is projected that 50% of the world's population will be myopic.** It is predicted that half of the world's population will require glasses in the near future.

Nobel Prize in Chemistry 2023

Why in News?

The **Royal Swedish Academy of Sciences** awarded the **Nobel Prize in Chemistry 2023** to **Moungi G Bawendi, Louis E Brus, and Alexei I Ekimov** for their groundbreaking discovery and synthesis of **quantum dots.**

How did Scientists Discover Quantum Dots?

➤ Background:

- Traditionally, **all pieces of a pure element**, regardless of size, were believed to have **identical properties** due to the uniform distribution of electrons.
 - However, about forty years ago, scientists discovered that nanoparticles on the nanoscale, **typically 1 to 100 billionths of a meter in size**, exhibited distinct behaviors different from their larger counterparts of the same element, **challenging this conventional belief.**

➤ The Nobel Laureates' Contributions:

- **Alexei Ekimov:** In around 1980, Alexei Ekimov was the first to observe the **anomalous behavior in Copper Chloride nanoparticles.**
 - He successfully manufactured these nanoparticles, **showcasing their distinctive properties.**
- **Louis Brus:** American scientist Louis Brus made a similar discovery involving **Cadmium Sulphide nanoparticles.**
 - Like Ekimov, he could create these **nanoparticles with altered properties.**
- **Moungi Bawendi:** Moungi Bawendi, who initially collaborated with Louis Brus, later played a pivotal role in **simplifying the production methods for nanoparticles with unique characteristics.**
 - His work paved the way for efficient and controlled manufacturing of nanoparticles displaying desired deviant behaviors.

➤ Factor Responsible for Distinctive Properties of Nanoparticles:

- The unconventional behavior of small nanoparticles is a result of the **emergence of quantum effects.**
- Despite nanoparticles being considerably larger than individual atoms, a crucial insight emerged in the 1930s, that **when particles are reduced to the nanoscale, quantum effects can come into play.**
 - This is primarily because, under such conditions, **electrons within atoms find themselves confined within a limited space.**
 - Typically, electrons move within a relatively spacious area outside the nucleus of an atom.
 - However, as particle size drastically decreases, **electrons experience increasing constraints**, leading to the manifestation of these peculiar quantum effects.
- This profound understanding, as **observed and demonstrated by the Nobel Laureates, Ekimov and Brus in their laboratories**, resulted in the creation of nano-sized particles with distinct

Note:

behaviors compared to their larger counterparts of the same element.

- These remarkable nanoparticles, possessing unique properties, came to be known as **quantum dots**.
- **Feature of Quantum Dots:** Quantum dots are **nanoscale particles**, typically ranging in size from **1 to 100 nanometers**. These minuscule structures possess unique properties that are **governed by their size**.
- Notably, the size of quantum dots determines the **colour of light they emit**, with smaller dots emitting **blue light** and larger ones shining in **yellow and red**.

Note:

- **Quantum Effect:** Quantum refers to the fundamental behavior of matter and energy at the smallest scales, where **classical physics no longer applies**.
 - Quantum effects are the phenomena that occur at the quantum level, where particles like electrons exhibit **behaviors such as superposition and entanglement**, which are distinct from classical physics.
- **Quantum Technology:** **Quantum technology** harnesses the unique properties of quantum mechanics to create innovative tools and applications, including **quantum computing, quantum cryptography, and quantum sensors**, with the potential to revolutionize various fields.

What can be the Applications of Quantum Dots?

- **Display Technology:** Quantum dots can enhance the quality of displays, such as **LED lamps and television screens**, by emitting clear and vibrant light.
- **Medical Imaging:** They can **illuminate tumor tissue during surgery**, aiding surgeons in precise removal.
 - Their nanoscale size makes them ideal for use in **tiny sensors**.
- **Flexible Electronics:** Quantum dots hold promise for **flexible electronics**, paving the way for innovative and adaptable devices..
- **Slimmer Solar Cells:** Quantum dots could lead to more **efficient and compact solar cells**, improving renewable energy solutions.
- **Encrypted Quantum Communication:** Quantum dots might play a role in developing **secure quantum communication technologies**, protecting sensitive information.

Who are the Other Recent Nobel Laureates in the Field of Chemistry?

- **2022**
 - **Carolyn R. Bertozzi, Morten Meldal and K. Barry Sharpless** “for the development of **click chemistry** and **bioorthogonal chemistry**”
- **2021**
 - **Benjamin List and David MacMillan** “for the development of **asymmetric organocatalysis**”
- **2020**
 - **Emmanuelle Charpentier and Jennifer A. Doudna** “for the development of a method for **genome editing**”
- **2019**
 - **John B. Goodenough, M. Stanley Whittingham and Akira Yoshino** “for the development of **lithium-ion batteries**”
- **2018**
 - **Frances H. Arnold** “for the directed **evolution of enzymes**”
 - **George P. Smith and Sir Gregory P. Winter** “for the phage display of **peptides and antibodies**”

Reference to Other Announcements of the Nobel Prizes 2023: **Physics** , **Physiology or Medicine**

R21/Matrix-M Malaria Vaccine

Why in News?

Recently, the **World Health Organisation (WHO)** has recommended the use of the **R21/Matrix-M malaria vaccine**, co-developed by the **University of Oxford** and the **Serum Institute of India**.

- The **Matrix-M component** is a proprietary **saponin-based adjuvant** developed by Novavax and licensed to the Serum Institute for use in endemic countries.
- As of now, the vaccine has been licensed for use in **Ghana, Nigeria and Burkina Faso**.

What is Adjuvant?

- An adjuvant is an **ingredient in a vaccine that enhances the immune system's response to that vaccine**.
 - Adjuvants help the immune system better recognize what's in a vaccine and remember it longer, increasing the amount of time that a vaccine may offer protection.

Note:

- **Matrix-M adjuvant** is derived from **saponins**, naturally occurring compounds found in the bark of the **Quillaja saponaria tree in Chile**. Saponins have a history of medicinal use.

What is Malaria?

➤ About:

- Malaria is a life-threatening disease caused by the **Plasmodium parasite**.
 - This parasite is transmitted to humans through the bites of **infected female Anopheles mosquitoes**.

➤ Plasmodium Parasite:

- There are **5 Plasmodium parasite species** that cause malaria in humans and 2 of these species, ***P. falciparum*** and ***P. vivax***, pose the greatest threat.
 - ***P. falciparum*** is the **deadliest** malaria parasite and the most prevalent on the African continent.
 - ***P. vivax*** is the **dominant malaria parasite** in most countries outside of sub-Saharan Africa.
- The other malaria species which can infect humans are ***P. malariae***, ***P. ovale*** and ***P. knowlesi***.

➤ Symptoms:

- Mild symptoms are **fever, chills and headache**. Severe symptoms include **fatigue, confusion, seizures, and difficulty breathing**.

➤ Prevalence:

- According to the **WHO's World Malaria report 2022**, there were 247 million cases of malaria in 2021 compared to 245 million cases in 2020.
- It is mostly found in tropical countries. Four African countries accounted for just over half of all malaria deaths worldwide: **Nigeria (31.3%)**, **the Democratic Republic of the Congo (12.6%)**, **United Republic of Tanzania (4.1%)** and **Niger (3.9%)**.

➤ Vaccine:

- Along with the recently confirmed **R21/Matrix-M vaccine**, WHO also recommends broad use of the **RTS,S/AS01 malaria vaccine** among children living in regions with moderate to high *P. falciparum* malaria transmission.

➤ Elimination Strategies:

- **Global:**
 - The **WHO Global Technical Strategy for Malaria 2016–2030, updated in 2021**, sets ambitious but achievable global targets, including:

- reducing malaria case incidence by at least 90% by 2030
- reducing malaria mortality rates by at least 90% by 2030
- eliminating malaria in at least 35 countries by 2030
- preventing a resurgence of malaria in all countries that are malaria-free.

○ India:

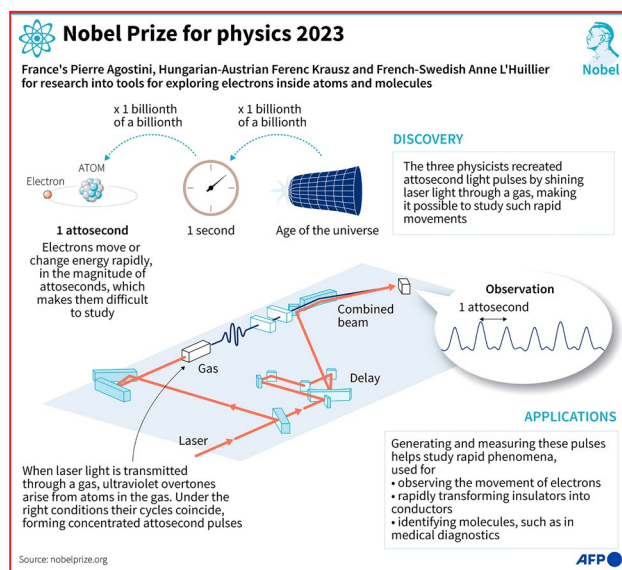
- **National Framework for Malaria Elimination (2016-2030)**
- **Malaria Elimination Research Alliance-India (MERA-India)**

Nobel Prize in Physics 2023

Why in News?

The **2023 Nobel Prize for Physics** has been awarded to three distinguished scientists: **Pierre Agostini, Ferenc Krausz, and Anne L'Huillier**.

- Their groundbreaking work in the field of experimental physics has led to the development of **attosecond pulses**, enabling scientists to directly observe and study the **rapid dynamics of electrons within matter**.



What is Electron Dynamics?

- **Electron dynamics** refers to the study and understanding of the behavior and motion of electrons within atoms, molecules, and solid materials.

Note:

- It encompasses various aspects of electron behavior, including their **movement, interactions with electromagnetic fields, and responses to external forces.**
- **Electrons** are fundamental particles with a **negative charge** and they orbit the dense nucleus. For a long time, **scientists had to rely on indirect methods to understand electron behavior**, akin to taking a photograph of a fast-moving race car with a long exposure time resulting in a blurry image.
- The rapid motion of electrons rendered them **nearly invisible to conventional measurement techniques.**
- Atoms in molecules exhibit movements on the order of **femtoseconds**, which are **incredibly short time intervals**, constituting a **millionth of a billionth of a second.**
- Electrons, being lighter and interacting even faster, operate within the **attosecond realm, a billionth of a billionth of a second (1×10^{-18} of second).**

Note: An attosecond pulse is an **incredibly brief burst of light** that lasts for attoseconds.

How did Scientists Achieve Attosecond Pulse Generation?

- **Background:**
 - In the **1980s**, physicists managed to create **light pulses lasting just a few femtoseconds.**
 - At that time, it was believed that this was the shortest achievable duration for light pulses.
 - However, to **'see' electrons in action, an even shorter pulse was needed.**
- **Advancements in Attosecond Pulse Generation:**
 - In **1987**, **Anne L'Huillier** and her team at a French laboratory achieved a significant breakthrough.
 - They passed an **infrared laser beam through a noble gas**, leading to the generation of **overtones**—waves of light with wavelengths that were integer fractions of the original beam.
 - The overtones generated in the gas were in the form of ultraviolet light. Scientists observed that when multiple overtones interacted, they could either **intensify each other through constructive interference** or cancel each other out through destructive interference.

- By **refining their setup**, physicists managed to create **intense attosecond pulses of light.**
- In **2001**, **Pierre Agostini** and his research group in France successfully produced a series of **250-attosecond light pulses.**
 - By combining this pulse train with the original beam, they conducted rapid experiments that offered unprecedented insights into electron dynamics.
- Simultaneously, **Ferenc Krausz** and his team in Austria developed a technique to **isolate individual 650-attosecond pulses from a pulse train.**
 - This breakthrough allowed researchers to measure the energy of electrons released by **krypton atoms** with remarkable precision.

What are the Applications of Attosecond Physics?

- **Studying Short-Lived Processes:** Attosecond pulses enable scientists to capture **'images' of ultrafast atomic and molecular processes.**
 - This has profound implications for fields such as **materials science, electronics, and catalysis**, where understanding rapid changes is crucial.
- **Medical Diagnostics:** Attosecond pulses can be employed in medical diagnostics to **detect specific molecules based on their fleeting signatures.** This promises improved medical imaging and diagnostic techniques.
- **Advancing Electronics:** Attosecond physics may lead to the **development of faster electronic devices**, pushing the boundaries of computing and telecommunications technology.
- **Enhanced Imaging and Spectroscopy:** The ability to manipulate attosecond pulses opens up possibilities for **higher-resolution imaging and spectroscopy**, with applications in fields ranging from **biology to astronomy.**

Who are the Other Recent Nobel Laureates in the Field of Physics?

- **2022**
 - **Alain Aspect, John F. Clauser and Anton Zeilinger** **"for experiments with entangled photons, establishing the violation of Bell inequalities and pioneering quantum information science"**
- **2021**
 - **"for groundbreaking contributions to our understanding of complex systems"**

Note:

- Syukuro Manabe and Klaus Hasselmann “for the **physical modeling of Earth’s climate**, quantifying variability and reliably predicting global warming”
- Giorgio Parisi “for the discovery of the interplay of disorder and fluctuations in physical systems from atomic to planetary scales”

➤ 2020

- Roger Penrose “for the discovery that **black hole formation is a robust prediction of the general theory of relativity**”
- Reinhard Genzel and Andrea Ghez “for the discovery of a **supermassive compact object** at the center of our galaxy”

➤ 2019

- “For contributions to our understanding of the evolution of the universe and Earth’s place in the cosmos”
- James Peebles “for theoretical discoveries in **physical cosmology**”
- Michel Mayor and Didier Queloz “for the discovery of an **exoplanet** orbiting a solar-type star”

➤ 2018

- “For groundbreaking inventions in the field of **laser physics**”
- Arthur Ashkin “for the **optical tweezers** and their application to biological systems”
- Gérard Mourou and Donna Strickland “for their method of generating **high-intensity, ultra-short optical pulses**”

➤ 2017

- Rainer Weiss, Barry C. Barish and Kip S. Thorne “for decisive contributions to the **LIGO detector** and the observation of gravitational waves”

Nobel Prize in Medicine 2023

Why in News?

The **Nobel Prize in Medicine or Physiology** for 2023 has been awarded to **Katalin Karikó and Drew Weissman** for their groundbreaking work on **nucleoside base modification** of **messenger Ribonucleic Acid (mRNA)**.

- The discoveries by the two Nobel Laureates were critical for developing effective **mRNA vaccines against Covid-19** during the pandemic that began in early 2020.

What Did Katalin

Karikó and Drew Weissman Discover?

➤ Understanding the Challenge:

- Cells possess an inherent capability to **detect foreign materials**. **Dendritic cells**, which play a crucial role in our immune system, had the ability to recognize **in vitro transcribed mRNA as foreign**, setting off an **inflammatory response**.
 - This reaction could potentially lead to harmful side effects and **undermine the vaccine’s efficacy**.
- Furthermore, another challenge stemmed from the fact that **in vitro transcribed mRNA** was highly unstable and susceptible to degradation by enzymes within the body.

Note

- **In vitro transcribed mRNA** is a type of synthetic RNA that is **produced in the laboratory** by using a DNA template and an RNA polymerase.
- It can be used for various purposes, such as **making RNA probes, vaccines, or proteins**.

➤ Katalin Karikó and Drew Weissman’s Discovery:

- Karikó and Weissman observed that **dendritic cells identify in vitro transcribed mRNA as foreign**, activating them and causing the release of inflammatory signals.
- They questioned why this **mRNA was considered foreign, unlike mRNA from mammalian cells**, which didn’t trigger the same response.
 - Mammalian cells are **eukaryotic cells** that belong to the **animal kingdom** and have a nucleus and other membrane-bound organelles.
- This led them to realize that **there must be distinct properties separating the two mRNA types**.
- **The Breakthrough:**
 - RNA, like **Deoxyribonucleic acid (DNA)**, consists of **four bases: A, U, G, and C**. Karikó and Weissman noticed that **natural RNA from mammalian cells often had chemical modifications in its bases**.
 - They hypothesized that the **absence of these modifications** in lab-made mRNA might cause **inflammatory reactions**.

Note:

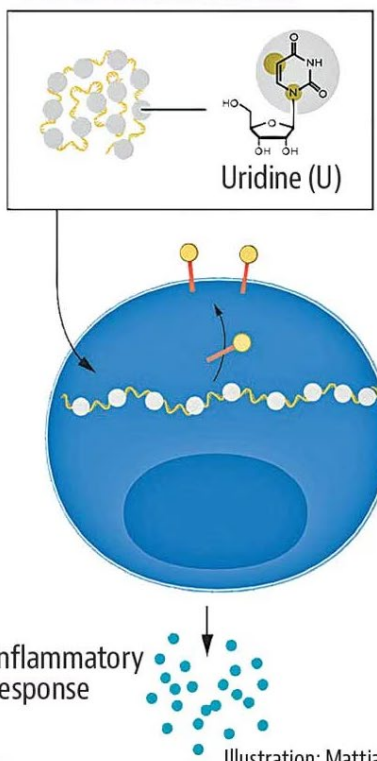
- To test this, they created various mRNA variants with unique chemical alterations and delivered them to dendritic cells. Their results showed a **significant reduction in inflammatory responses** when **base modifications were included in the mRNA**.
- This discovery transformed our understanding of how cells recognize and respond to different types of mRNA, with profound implications for mRNA's therapeutic potential.

- Their subsequent studies in 2008 and 2010 demonstrated that mRNA with **base modifications led to increased protein production**.
 - This effect was attributed to the **reduced activation of an enzyme involved in protein production**.
- Karikó and Weissman's research removed critical obstacles, making **mRNA more suitable for clinical applications**.

mRNA vax: A pioneering research

A problem with injected mRNA was that it caused inflammatory reactions. To prevent this, the two scientists modified the mRNA's chemistry; this technology is used in Moderna and Pfizer's Covid vaccines

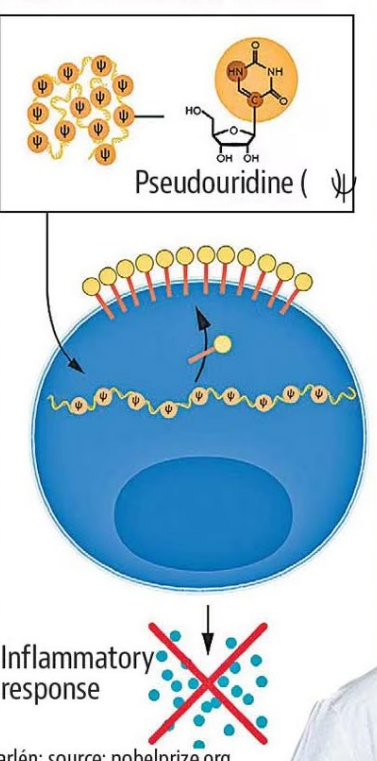
Unmodified mRNA



Uridine (U)

Inflammatory response

Base-modified mRNA

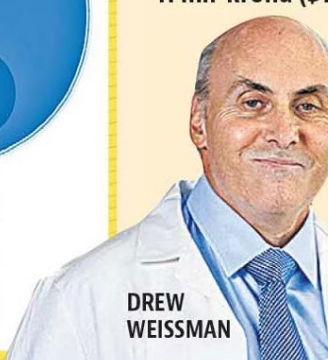


Pseudouridine (Ψ)


Inflammatory response

ABOUT THE SCIENTISTS

- Hungarian scientist Katalin Kariko, a former senior vice-president and head of RNA protein replacement at German biotech firm BioNTech, is a professor at the University of Szeged in Hungary and adjunct professor at the University of Pennsylvania
- Co-winner US scientist Drew Weissman is a professor in vaccine research also at Pennsylvania
- The two scientists will share the 11 mn-krona (\$1 million) award



DREW WEISSMAN



KATALIN KARIKO

Illustration: Mattias Karlén; source: nobelprize.org

➤ Application of Base-modified mRNA Vaccines:

- Interest in mRNA technology grew, and by 2010, several companies were actively developing this method for various purposes.
- Initially pursued for **vaccines against diseases like Zika virus, which is closely related to SARS-CoV-2**.
- With the onset of the Covid-19 pandemic, **base-modified mRNA vaccines** encoding the SARS-

CoV-2 surface protein were developed at an unprecedented pace.

- These vaccines demonstrated protective effects of approximately 95% and received approval as early as December 2020.
- The remarkable flexibility and speed of mRNA vaccine development opened doors to potential use against other infectious diseases.

Note:

- Collectively, more than **13 billion Covid-19 vaccine doses** have been administered worldwide, saving millions of lives and preventing severe illness.
- This **transformative development during a major health crisis** highlights the critical role played by this year's Nobel laureates in recognizing the importance of base modifications in mRNA.

What are mRNA

Vaccines and How do they Work?

- mRNA stands for **messenger RNA**, a molecule that carries **genetic information from DNA to the protein-making machinery of the cell**.
- mRNA vaccines use synthetic mRNA that encodes a **specific protein from a pathogen**, such as the **spike protein of the coronavirus**.
 - When the mRNA vaccine is injected into the body, some of the cells take up the mRNA and use it to produce the protein. The protein then triggers an **immune response** that produces **antibodies and memory cells that can recognize and fight the pathogen in the future**.
- mRNA vaccines are faster and cheaper to produce, as they do not require cell culture or complex purification processes.
- mRNA vaccines are also more flexible and adaptable, as they can be easily modified to target new variants or strains of pathogens.

Digital World of Cookies

Why in News?

As the ever-evolving digital landscape continues to reshape online experiences, **cookies emerge as dual agents**, serving as **indispensable facilitators of personalization and convenience**, yet concurrently posing significant challenges in the domains of **user privacy and data security**.

What are Cookies?

- **About:**
 - In the realm of computing and web browsing, cookies are small pieces of data stored on a user's device (browser), commonly as text files.
 - These **files are generated by the websites** a user visits and serve the purpose of retaining information regarding the user's interactions and preferences during their online navigation.

Categories of Cookies

- **Session Cookies:** Temporary in nature, **these cookies function as digital post-it notes for websites**, residing in a user's computer memory **solely during active browsing sessions**.
- **Persistent Cookies:** Analogous to **digital bookmarks**, persistent cookies endure on the **user's device beyond the conclusion of a browsing session**.
 - They retain and recall information such as login credentials, language preferences, and previous interactions with advertisements.
- **Secure Cookies:** Distinguished by their **transmission over encrypted connections**, these cookies are employed primarily for safeguarding sensitive data, such as login credentials.
- **Third-party Cookies:** Originating from domains distinct from the one currently being visited, these cookies are frequently **employed for tracking and advertising purposes**, offering both utility and the potential for intrusion.

Role of Cookies

- **User Authentication:** Functioning as **digital identity cards**, cookies assist websites in recognizing and preserving user login statuses throughout their visits.
- **Personalization:** Cookies enable the **retention of user preferences**, encompassing language selections and website themes.
- **Persistent Shopping Carts:** They ensure that **items added to online shopping carts remain accessible** even upon subsequent returns.
- **Analytics:** Cookies aid website proprietors in the **collection of valuable data concerning user interactions**, thereby facilitating enhancements and tailored content delivery.
- **Targeted Advertising:** Advertisers employ cookies to showcase advertisements that **correspond with user interests and previous browsing histories**, enhancing the allure of online shopping.

Associated Challenges

- **Privacy Concerns:** Cookies possess the **capability to track user online behavior**, raising concerns about potential intrusions into digital privacy.
 - Inadequately secured cookies can serve as **vulnerabilities exploited by cybercriminals** to gain access to and pilfer personal information.
 - Through **Cross-Site Request Forgery (CSRF)**, attackers can use cookies to **perform unauthorized actions on a user's behalf without their consent**.

Note:

- **Cookie Bloat:** Over time, as users visit more websites, cookies accumulate on their devices, **consuming storage space** and potentially slowing down web browsing.
- **Impact on User Experience:** Users may find these frequent consent requests **annoying and disruptive to their browsing experience**, as they have to interact with these dialogs repeatedly.

Cholera

Why in News?

According to the **World Health Organization (WHO)**'s weekly Epidemiological Record, the World reported more than twice as many cholera cases in 2022 as it did in 2021.

- This escalation presents a substantial challenge to the WHO ambitious goal set in 2017 to **reduce global cholera deaths by 90% by 2030**.

What is Cholera?

- **About:**
 - Cholera, a water-borne disease primarily caused by **the bacteria Vibrio cholerae strains O1 and O139**, poses a significant public health challenge worldwide.
 - Strain O1 is the predominant cause of outbreaks, with O139 occurrences being rare and mostly confined to Asia.
 - It is an acute diarrheal illness caused by infection of the intestine.
 - The infection is often mild or without symptoms, but sometimes can be severe.
- **Symptoms:**
 - Profuse watery diarrhoea, Vomiting, Leg cramps
- **Transmission:**
 - A person may get cholera by drinking water or eating food **contaminated with the cholera bacterium**.
 - The disease can spread rapidly in areas with inadequate treatment of sewage and drinking water.
- **Vaccine:**
 - Currently there are three WHO pre-qualified Oral Cholera Vaccines (OCV), Dukoral, Shanchol, and Euvichol-Plus. All three vaccines require two doses for full protection.

What are Factors

Driving the Escalation of Cholera Cases?

- **Decline in Covid Pandemic Restrictions:**

- The decline in **Covid-19 pandemic** restrictions played a crucial role in allowing the spread of cholera. Limited investments in providing adequate care to vulnerable populations, **effects of climate change**, and escalating conflicts further exacerbated the situation.

➤ **Insufficient Access to Sanitation:**

- The symbiotic relationship between cholera transmission and insufficient access to clean water and sanitation facilities is a critical factor.
- Notably, *Vibrio cholerae* bacteria tend to **thrive in warmer waters with lower salinity**, conditions intensified by climate change-induced floods, **heatwaves**, intense **monsoonal rains**, storms, and prolonged warm periods.

➤ **Vibrio Pathogens and Microplastics:**

- According to research from the University of Florida in June 2023, *Vibrio* **pathogens possess a unique capability to adhere to microplastics**, potentially adapting to this environment, even in the open ocean.
- This interaction between *Vibrio* bacteria and microplastics signifies an additional dimension to cholera transmission dynamics, necessitating further investigation and policy considerations.

➤ **Climate Change and Cholera Transmission:**

- A study published in 2021 in The Lancet Planetary Health emphasizes how climate change intensifies cholera concerns.
- It predicted a potential increase of 38,000 km in coastline conducive to *Vibrio* bacteria development by 2100, compared to the 1850-2014 average.

What are the

Geographical Distribution and Cholera Trends?

- The majority of cholera cases persistently **emanate from Africa and Asia, with Europe sporadically reporting "imported cases."**
- In Africa, the 2022 cholera cases were more dispersed compared to 2021, with no single country reporting more than 25% of all cases and 30% of all deaths.
 - However, this apparent improvement is overshadowed by the doubling of case and death numbers in countries apart from **Nigeria, which experienced a massive cholera outbreak in 2021.**
- A similar **pattern of increased cases was observed in Asia**, notably in countries like Lebanon, Syria, and Afghanistan.

Note:



drishti

Cases on the rise

The charts are sourced from the World Health Organization (WHO)'s weekly epidemiological record, published on September 22, 2023



Chart 1 The chart shows year-wise reported cholera cases between 1989 and 2022

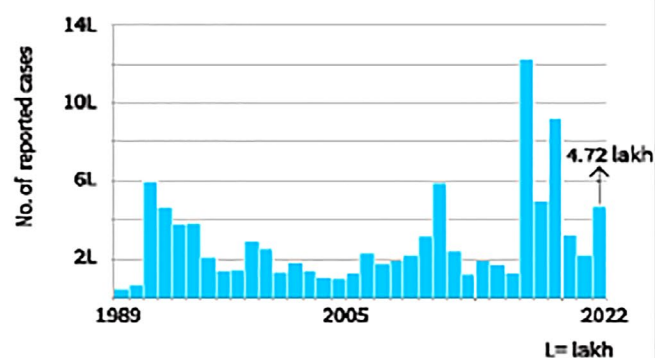
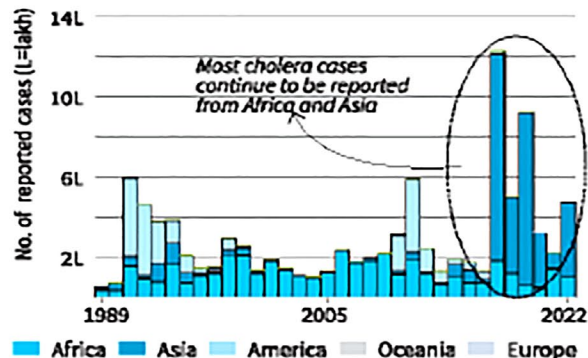
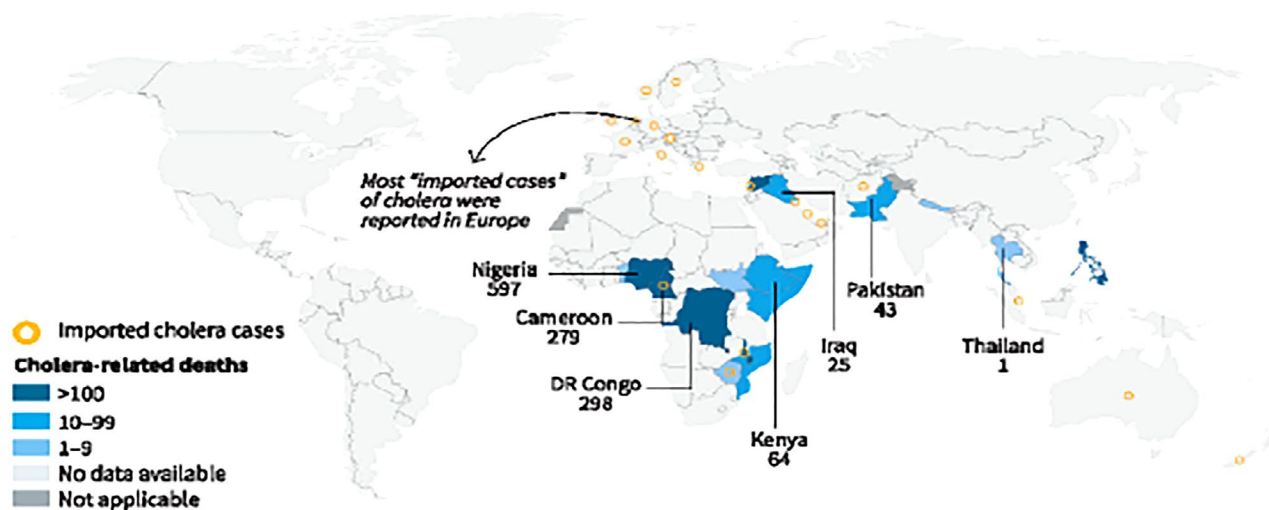


Chart 2 The chart shows year-wise cholera cases reported to WHO across continents



Map 3 The map shows the country-wise reported cholera deaths and imported cases in 2022



Note:

What are the Initiatives to Curb Cholera?

- **A global strategy on cholera control, Ending Cholera:** A global roadmap to 2030, with a target to reduce cholera deaths by 90% was launched in 2017.
- **Global Task Force for Cholera Control (GTFCC):** WHO revitalized the Global Task Force for Cholera Control (GTFCC) to strengthen WHO's work in eradicating cholera.
 - The purpose of the GTFCC is to support increased implementation of evidence-based strategies to control cholera.

What can be the Response Measures to Tackle Cholera?

- To address the growing cholera burden globally, **adaptations in the recommended oral cholera vaccine regimen** have been made.
- While awaiting the fruition of larger-scale manufacturing investments, the management of the emergency stockpile for the oral cholera vaccine has modified the vaccination regime, reducing it from two doses to a single dose.
 - This strategic adjustment aims to enhance the efficiency and reach of cholera vaccinations.

Measles

Why in News?

Recently, there has been a significant spike in measles cases and fatalities in Delhi, attributed to **under-reporting of cases during the Covid-19 lockdowns** in the previous years.

- The Covid-19 lockdowns in 2020 and 2021, the **focus and resources were primarily directed towards managing the pandemic**, leading to **weakened surveillance for measles** and other diseases, **contributing to measles cases**, along with challenges related to vaccine acceptance, even among some affluent segments of society.

What is Measles?

- **About:**
 - Measles virus is an enveloped, **ribonucleic acid virus** of the **genus Morbillivirus**.
 - Measles is highly contagious, and an infected person will often transmit the virus to over 90% of unprotected close contacts.

- The virus infects the respiratory tract, then spreads throughout the body. Measles is a human disease and is not known to occur in animals.
- Measles can be entirely prevented through a **two-dose vaccine and has been officially eliminated in many countries** with advanced healthcare systems.
- **Treatment:**
 - **No specific antiviral treatment** exists for measles virus.
 - Severe complications from measles can be avoided through medical care that ensures good nutrition, adequate fluid intake, and treatment of dehydration.
- **Prevention:**
 - Routine measles vaccination for children, combined with **mass immunization campaigns** in countries with high case and death rates, are key public health strategies to reduce global measles deaths.
- **Cases of Measles in India:**
 - Measles cases **dropped by 62% between 2017 and 2021**, from 10.4 to 4 cases per million population.

What are the Initiatives to Tackle Measles?

- **The Measles & Rubella Initiative:**
 - Launched in 2001, the Measles & Rubella Initiative (M&R Initiative) is a global partnership led by the **American Red Cross**, United Nations Foundation, Centers for Disease Control and Prevention (CDC), **UNICEF** and **WHO**.
 - The Initiative is committed to **ensuring that no child dies from measles or is born with congenital rubella syndrome**. We help countries to plan, fund and measure efforts to stop measles and rubella for good.
- **Measles-Rubella (MR) Vaccination:**
 - It targets around 41 crore children across India, covering all children aged **between 9 months and less than 15 years and will** be given a single shot of Measles-Rubella (MR) vaccination irrespective of their previous measles/rubella vaccination status or measles/rubella disease status.
- Other Initiatives include **Universal Immunization Programme (UIP)**, **Mission Indradhanush** and **Intensified Mission Indradhanush**.

Note:

Environment & Ecology

Highlights

- Invisible E-Waste
- Stratospheric Aerosol Intervention Impact on Global Food Production
- Dancing Frogs
- Amphibians Threatened by Climate Change
- Coral Reef Breakthrough
- Coexistence of Tiger and Asiatic Wild Dog
- Ganges River Dolphin
- Dandeli Forest
- Metal Mining Pollution
- Platypus
- Illicit Trade of Tortoises and Hard-Shell Turtles
- Methane Emissions from Livestock
- Review of Maritime Transport 2023: UNCTAD
- Tiger Deaths Raise Concerns in Nilgiris Biodiversity

Invisible E-Waste

Why in News?

Recently, the Brussels-based **Waste Electrical and Electronic Equipment (WEEE) Forum on the Occasion of International E-Waste Day (14th October)**, commissioned the **United Nations Institute for Training and Research (UNITAR)** to calculate the annual quantities of **Invisible E-Waste items**.

- **Invisible e-waste** refers to electronic waste that often goes unnoticed due to its nature or appearance, causing consumers to overlook its recyclable potential.
- There are Numerous electronic items falling under this category, such as **cables, e-toys, e-cigarettes, e-bikes, power tools, smoke detectors, USB sticks, wearable health devices, and smart home gadgets.**

What is the WEEE Forum?

- It is the world's **largest multinational centre of competence** as regards operational know-how concerning the management of 'waste electrical and electronic equipment' (or 'WEEE', for short).
- It is a **not-for-profit association of 46 WEEE producer responsibility organisations** across the world and was founded in April 2002.
- Through exchange of best practice and access to its reputable knowledge base toolbox, the WEEE Forum **enables its members to improve their operations** and be known as promoters of the circular economy.

What are the Key Highlights of the Study?

- **Invisible E-Waste Volume:**
 - Consumers fail to recognize almost **one-sixth of global Electronic Waste**, totaling nearly 9 billion kilograms annually.
 - Around **35% of invisible e-waste (approximately 3.2 billion kilograms)** comes from the e-toy category, including race car sets, electric trains, drones, and biking computers.
 - An estimated **844 million vaping devices are discarded** annually, contributing significantly to the invisible e-waste mountain.
- **Value of Invisible E-Waste:**
 - The material value of invisible e-waste amounts to about **USD 9.5 billion** each year, showcasing its **economic importance primarily due to components** like iron, copper, and gold.
- **Global E-Waste Management and Recycling Challenges:**
 - Globally, only a **small fraction of e-waste is properly collected, treated, and recycled.**
 - In Europe, 55 % of e-waste generated is now officially collected and reported. Still, in other parts of the world the reported **average collection rate is just over 17%.**
 - The majority **ends up in landfills, burned, illegally traded**, improperly treated, or hoarded in households.
 - **Lack of public awareness** hampers efforts to develop circular economies for electronic equipment in various parts of the world, necessitating a global approach to e-waste management.

Note:



drishti

➤ **Environmental Concerns:**

- **Improper disposal** of invisible e-waste poses a substantial environmental risk, as hazardous components in these items, **such as lead, mercury, and cadmium**, can contaminate soil and water if not appropriately managed.

➤ **Recommendations:**

- Invisible e-waste represents an **untapped resource**, highlighting the potential for economic recovery and the urgent **need to raise awareness about recycling these valuable materials**.
 - The **value of raw materials** in the global e-waste generated amounted to an **estimated USD57 billion in 2019**. Of the total, a sixth or **USD9.5 billion** in material value each year is in the **invisible e-waste category**.
- Raising awareness is **crucial to unlock the recycling potential** and meet the growing demand for materials in various strategic sectors like renewable energy, electric mobility, industry, communications, aerospace, and defense.

What are the Provisions regarding E-waste in India?

- **E-waste (Management) Rules, 2016** was enacted in 2017, with over 21 products (Schedule-I) included under the purview of the rule. It included Compact Fluorescent Lamp (CFL) and other mercury containing lamps, as well as other such equipment.
- In 2011, a significant notice pertaining to the E-waste (Management and Handling) Regulations of 2010, governed by the Environment (Protection) Act of 1986, was issued.
 - **Extended producer's responsibility (EPR)** was its main feature.
- Government of India notified **E-Waste (Management) Rules, 2022** with a major aim to digitize the e-waste management process and enhance visibility.
 - It also restricts the use of hazardous substances (such as lead, mercury, and cadmium) in manufacturing electrical and electronic equipment that have an adverse impact on human health and the environment.
- **Deposit Refund Scheme** has been introduced as an additional economic instrument wherein the producer charges an additional amount as a deposit at the time of sale of the electrical and electronic equipment and returns it to the consumer along with interest when the end-of-life electrical and electronic equipment is returned.

Stratospheric Aerosol Intervention Impact on Global Food Production

Why in News?

A recent study published in the journal *Nature Food* highlights the potential consequences of a **geoengineering technique**, **stratospheric aerosol intervention (SAI)**, on global food production.

What are the Key Highlights of the Study?

➤ **SAI as a Climate Intervention:**

- SAI is considered a Plan B for addressing **climate change** if traditional mitigation strategies fail.
- SAI mimics volcanic eruptions by injecting **sulphur dioxide into the stratosphere** (layer of atmosphere extending from about 10 kilometres to 50 km in altitude), where it oxidises to **form sulphuric acid**, which then forms reflective **aerosol particles**.
 - For example, **Mount Pinatubo in the Philippines** erupted in 2001 and injected about **15 million tonnes of sulphur dioxide** into the stratosphere, which then formed aerosol particles.
 - According to the **National Aeronautics and Space Administration (NASA)**, it caused a drop in the **average global temperature of about 0.6 degrees Celsius over the next 15 months**.

➤ **Diverse Impact on Agriculture:**

- Reduction in temperature due to SAI affects agriculture differently based on factors like **precipitation and solar radiation**.
 - Understanding the ideal global temperatures for crop production is crucial for informed decision-making.
- Researchers employ computer models to evaluate the effects of SAI scenarios on crops like **maize, rice, soybean, and spring wheat**.
- Under **uncontrolled climate change**, crop production thrives in cold, high-latitude areas like Canada and Russia.
- **Moderate SAI levels** could enhance food productivity in mid-latitude temperate regions like **North America and Eurasia**.

Note:



drishti

- Under **large amounts of climate intervention**, agricultural production in the tropics could see an increase.
 - These regions include Mexico, Central America, the Caribbean and the top half of South America, most of Africa, parts of the Middle East, most of India, all of Southeast Asia, most of Australia and most of the island nations of Oceania.
- Different nations may opt for varying SAI levels to maximize crop production, considering their geographical location and climate conditions.
- **Comprehensive Impact Assessment:**
 - Beyond crop production, the study underscores the need to explore other consequences, such as effects on human health and ecosystems.

What is Stratospheric Aerosol Intervention (SAI)?

- SAI is a proposed method of solar geoengineering (or solar radiation modification) to reduce **global warming**.
 - This would introduce aerosols into the stratosphere to create a cooling effect via global dimming and increased **albedo**, which occurs naturally from volcanic winter.
- However, some of the possible disadvantages of SAI are that it could have unintended consequences for the environment and human society, such as affecting the ozone layer, the hydrological cycle, the monsoon systems, and crop yields.

What is Geoengineering Technique?

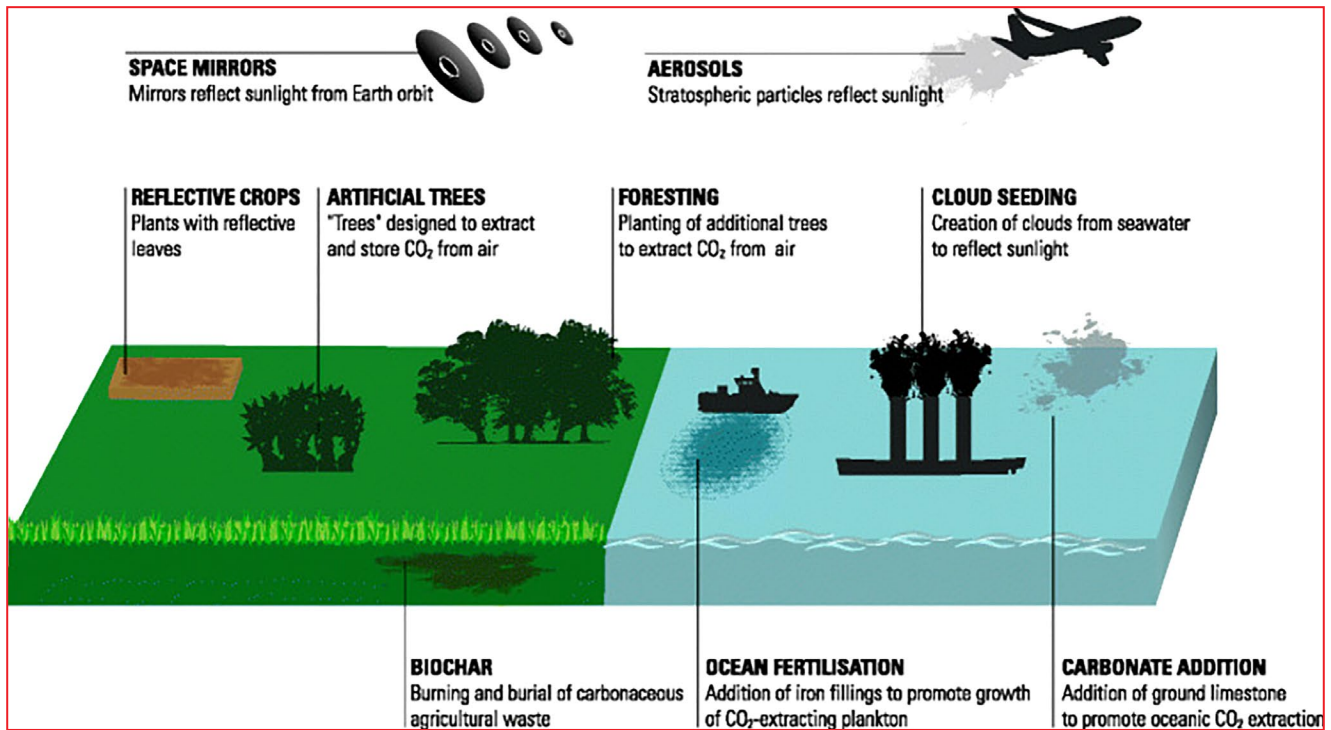
- **About:**
 - It is a term that refers to the deliberate large-scale intervention in the Earth's climate system to combat climate change.
 - These interventions generally fall into two categories: **Carbon Dioxide Removal (CDR)** and **Solar Radiation Management (SRM)**.
- **Carbon Dioxide Removal (CDR):**
 - These techniques aim to remove excess carbon dioxide from the atmosphere, thereby reducing the greenhouse effect.
 - **Examples of CDR Techniques:**

- **Afforestation and Reforestation:**
 - Planting trees or restoring forests to increase the natural absorption of carbon dioxide by plants.
- **Biochar:**
 - Converting **biomass** into **charcoal** and burying it in the soil to enhance its carbon storage capacity.
- **Bioenergy with Carbon Capture and Storage (BECCS):**
 - Growing crops for **biofuel production** and capturing the carbon dioxide emitted during combustion and storing it underground or in the ocean.
- **Ocean Fertilization:**
 - Adding nutrients such as iron or **nitrogen to the ocean to stimulate the growth of phytoplankton** that consume carbon dioxide and transfer it to the deep ocean.
- **Solar Radiation Management (SRM):**
 - These techniques aim to reduce the amount of solar energy that reaches the Earth's surface, thereby cooling the planet.
 - **Examples of SRM Techniques:**
 - **Stratospheric Aerosol Intervention (SAI).**
 - **Space-Based Reflectors (SBR):**
 - Placing mirrors or other devices in orbit around the Earth to deflect or block some of the incoming sunlight.
 - **Marine Cloud Brightening (MCB):**
 - Spraying sea water droplets or other substances into low-level clouds over the ocean to increase their reflectivity and albedo.
 - **Cirrus Cloud Thinning (CCT):**
 - Reducing the formation or persistence of high-level cirrus clouds that trap heat by **cloud seeding** them with ice crystals or other agents.
 - **Surface Albedo Modification (SAM):**
 - Changing the reflectivity of the land or sea surface by painting roofs white, covering deserts with reflective sheets, or increasing the ice cover.

Note:



drishti



Dancing Frogs

Why in News?

Recently, the **Wildlife Trust of India** has assessed the **2nd edition of the Global Amphibian Assessment** coordinated by the Amphibian Specialist Group of the IUCN Species Survival Commission, which shows that the Dancing Frogs that are endemic to the **Western Ghats** are the most threatened amphibian genus of India.



- Of the 24 species of the frogs belonging to the *Micrixalus* genus that were assessed, **two were found to be critically endangered** and 15 were endangered. This makes them the **most threatened of all Indo-Malayan genera**.
- It is also the fifth most threatened genus in the world with 92% of its species in the threatened category.

What are Dancing Frogs?

- **About:**
 - Dancing frogs, specifically from the ***Micrixalus* genus**, are a group of frogs.

➤ Behavior and Mating Display:

- Dancing frogs exhibit a unique mating behavior characterized by **foot flagging, where males extend their hind legs and wave their webbed toes**.
- This visual display helps in attracting female mates and signaling to rival males.

➤ Habitat Preference:

- They prefer **habitats with a thick canopy cover**, typically around 70-80 %, and are often found **near slow-moving perennial streams** within the Western Ghats.

➤ Threats:

- The population of dancing frogs is threatened by various anthropogenic factors, including **invasive species like the Mosquito Fish**, land use change, temperature and humidity variations, extreme weather events, infectious diseases, water pollution, light pollution, and infrastructure projects such as dams.
- Protecting the natural habitats and maintaining optimal living conditions are crucial for the survival of these species. However, **globally, amphibian populations are declining**, with a significant percentage categorized as threatened with extinction.

Note:



drishti

➤ Conservation Efforts:

- Conservation initiatives, such as the Wildlife Trust of India's **Amphibian Recovery Project**, are actively working to address challenges that pose a risk of extinction to amphibian species.
- These efforts include threat mitigation, conservation action planning, capacity development, training, advocacy, and information sharing.

Amphibians Threatened by Climate Change

Why in News?

Recently, the study titled '**Ongoing declines for the world's amphibians in the face of emerging threats**' published in the Nature journal reveals significant threats to **Amphibians** worldwide particularly from **Climate Change**.

- The study is based on the second global amphibian assessment coordinated by the Amphibian Red List Authority, a branch of the Amphibian Specialist Group of the **International Union for Conservation of Nature's (IUCN)** Species Survival Commission.
- The assessment evaluated the **extinction risk of more than 8,000 amphibian species** from all over the world, including 2,286 species evaluated for the first time

What are the Key Highlights of the Study?

➤ Extinction Risk:

- Two out of every five amphibian species are threatened with extinction.
- 40.7% of the species being globally threatened – highest for any species. This is compared to **26.5% of mammals**, 21.4% of reptiles and 12.9% of birds.
- Between 2004 and 2022, over 300 amphibian species have **moved closer to extinction**, with climate change identified as the primary threat for 39% of these species.
 - Amphibians are particularly sensitive to environmental changes, making them vulnerable to the effects of climate change.

➤ Amphibians Gone Extinct:

- Four amphibian species were documented as having gone **extinct since 2004** — the Chiriquí harlequin toad (*Atelopus chiriquiensis*) from Costa Rica, the

sharp-snouted day frog (*Taudactylus acutirostris*) from Australia, Craugastor myllomylon and the Jalpa false brook salamander (*Pseudoeurycea exspectata*), both from Guatemala.

➤ Greatest Concentration of Threatened Amphibians:

- The greatest concentrations of threatened amphibians were found to be in the Caribbean islands, **Mexico and Central America, the tropical Andes region, India's Western Ghats**, Sri Lanka, Cameroon, Nigeria and Madagascar.

➤ Human Impact:

- Habitat destruction and degradation due to activities such as agriculture, infrastructure development, and other industries remain the most common threats to amphibians, **affecting 93% of all threatened species**.

➤ Disease and Overexploitation:

- Disease caused by the **chytrid fungus** and overexploitation continue to contribute to amphibian declines.
- Disease and habitat **loss drove 91 %** of status deteriorations **between 1980 and 2004**.
- Ongoing and projected climate change effects are **now of increasing concern, driving 39%** of status deterioration since 2004, followed by habitat loss amounting to 37%.

➤ Salamander Threat:

- Three out of **every five salamander species** are threatened with extinction, primarily due to habitat destruction and climate change.
- Salamanders are identified as the world's **most threatened group of amphibians**.
 - Amphibians first **appeared more than 300 million years ago**. Three orders of amphibians exist today:
 - Salamanders and newts (60% threatened with extinction); frogs and toads (39%); and the limbless and serpentine caecilians (16%).

➤ Conservation Action:

- Conservationists plan to **use the study's findings** to develop a global conservation action plan, prioritize conservation efforts, secure additional resources, and influence policies to reverse the negative trend for amphibians.

Note:



drishti

What are Amphibians?

➤ About:

- They fall under the Chordata phylum of the kingdom **Animalia**, Eg., **Frogs, Toads, Salamanders, newts, caecilians etc.**
- These are multicellular vertebrates that live both on land and water.
- They are the first cold-blooded animals to have appeared on land.
 - **Cold-blooded animals** can be defined as the animals which cannot regulate their internal body temperature with the change in the environment.
- They respire through the lungs and skin.
- They have three chambered hearts.

➤ Significance:

- Meanwhile, from an **ecological perspective**, amphibians are regarded as vital **ecological indicators**. Due to a high degree of sensitivity, they are studied and indicate habitat fragmentation, ecosystem stress, the impact of pesticides, and various anthropogenic activities.
 - They are **important biological indicators** and important for the wider health of the ecosystems.
- They play a significant role **both as a predator and prey**. Amphibians eat pests, which is beneficial for agriculture, and in **controlling diseases like malaria** and more.
- Amphibians are important **from a medical point of view**. The skin of amphibians contains **different types of peptides** and offers the possibility of medical cures for several human diseases.
 - At present, they are also used in some painkillers.

Coral Reef Breakthrough

Why in News?

The **International Coral Reef Initiative (ICRI)**, has launched the **Coral Reef Breakthrough** in partnership with the **Global Fund for Coral Reefs (GFCR)** and the **High-Level Climate Champions (HLCC)**.

- The Initiative was launched at the **37th ICRI General Meeting, 2023**.

International Coral Reef Initiative (ICRI)

- It is a global partnership between Nations and organizations that strives to preserve coral reefs and related ecosystems around the world.
- The Initiative was founded in **1994 by eight governments: Australia, France, Japan, Jamaica, the Philippines, Sweden, the United Kingdom, and the United States of America**.
 - It was announced at the **First Conference of the Parties of the Convention on Biological Diversity, 1994**.
- ICRI has **101 members, including 45 countries (India is one of them)**.

High-Level Climate Champions (HLCC)

- They are appointed by the **United Nations** to facilitate and enhance the engagement of non-state actors such as businesses, cities, regions, and investors in supporting the goals of the **Paris Agreement on climate change**.

Global Fund for Coral Reefs (GFCR)

- The GFCR is a blended finance instrument to mobilise action and resources to protect and restore coral reef ecosystems.
 - It provides grant funding and private capital to support sustainable interventions to save coral reefs and the communities that rely on them.
- UN Agencies, nations, philanthropies, private investors and organisations have joined the Global Fund for Coral Reefs Coalition to deliver on ecological, social and economic resilience.

What is the Coral Reef Breakthrough?

- The Coral Reef Breakthrough is a science-based initiative with clear goals for the state and non-state actors to collectively conserve, protect, and restore **coral reefs**, safeguarding their vital contributions to humanity's future.
- The Coral Reef Breakthrough aims to secure the future of at least **125,000 km² of shallow-water tropical coral reefs** with investments of **at least USD 12 billion** to support the resilience of more than half a billion people globally **by 2030**.
- The initiative is based on **four action points**:
 - **Action point 1:**
 - Mitigate **local drivers of loss** including land-based sources of pollution, destructive coastal development, and overfishing.

Note:



drishti

Coral Reefs

(Rainforests of the seas)



About

- ✦ Large underwater structures – made of skeletons of colonial marine invertebrates ‘coral’ – individually called polyp
- ✦ Symbiotic Relationship with algae ‘zooxanthellae’ (responsible for beautiful colours of corals)
- ✦ Support over 25% of marine biodiversity

Hard Corals vs Soft Corals

- ✦ Hard Corals - Rigid skeleton made of CaCO_3 - reef-building corals
- ✦ Soft Corals - Non reef-building

Great Barrier Reef (Australia)

- ✦ Largest Coral Reef in the World
- ✦ World Heritage Site (1981)
- ✦ Endures Mass Coral Bleaching



Corals in India

- ✦ Present in the areas of Gulf of Kutch, Gulf of Mannar, Andaman & Nicobar, Lakshadweep Islands and Malvan

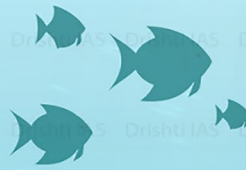


Significance

- ✦ Coral reefs protect coastlines from storms/erosion, provide jobs, offer opportunities for recreation
- ✦ Source of food/medicines

Threats

- ✦ Natural: Temperature, Sediment Deposition, Salinity, pH, etc.
- ✦ Anthropogenic: Mining, Bottom Fishing, Tourism, pollution, etc.



Coral Bleaching

- ✦ Corals under stress - expel algae – thus turning white (bleached)
- ✦ Bleached corals - not dead – but, more risk of starvation/disease



Initiatives to Protect Corals

Technology

- ✦ Cryomesh: Storage of the coral larvae at (-196°C) - Can be later reintroduced to the wild
- ✦ Biorock: Creating artificial reefs on which coral can grow rapidly



Global

- ✦ International Coral Reef Initiative
- ✦ The Global Coral Reef R&D Accelerator Platform

Indian

National Coastal Mission Programme

Action point 2:

- Double the area of coral reefs under effective protection: Bolster resilience-based coral reef conservation efforts by aligning with and transcending global coastal protection targets including 30by30.

- 30 by 30 is a global initiative to protect at least 30% of the Earth's land and ocean area by 2030. It was proposed during the UNCCD Conference of Parties (COP15).

Action point 3:

- Assist the development and implementation of innovative solutions at scale and climate-smart designs that support coral adaptation to impact 30% of degraded reefs by 2030.

Action point 4:

- Secure investments of at least USD 12 billion by 2030 from public and private sources to conserve and restore these crucial ecosystems.

➤ Meeting the targets of the Coral Breakthrough will be instrumental in achieving the Sustainable Development Goals (SDGs), particularly SDG14, Life Below Water.

Note:



drishti

Coexistence of Tiger and Asiatic Wild Dog

Why in News?

In a recent study titled '*Do dholes segregate themselves from their sympatrids? Habitat use and carnivore co-existence in the tropical forest*,' researchers have unveiled fascinating insights into the **coexistence dynamics between dhole or Asiatic wild dog (*Cuon alpinus*), and tigers** within Assam's Manas National Park.

- This study delves into the factors that shape this unique carnivore relationship, providing valuable insights into their interactions and habitat preferences.

What are the Key Highlights of the Study?

- The study conducted in Assam's Manas National Park revealed a **surprising positive relationship between dholes (Asiatic wild dogs) and tigers**, challenging previous assumptions of **antagonistic interactions**.
- The positive association between dholes and tigers may be attributed to overlapping **prey availability or habitat suitability**, suggesting a more complex ecological dynamic at play and prompting the need for further research.
 - The research found that the activity of dholes had the highest temporal overlap with **leopards** and the lowest with **clouded leopards** (*Neofelis nebulosa*).
- This study highlights the **Manas National Park's conservation significance**, as dhole populations face fragmentation due to habitat loss, declining prey availability, persecution, disease, and competition with other species.

Dhole:

➤ About:

- Dhole (*Cuon alpinus*) is a wild carnivorous animal and is a member of the family Canidae and the class Mammalia.



➤ Habitat:

- Dholes, historically widespread across **southern Russia to southeast Asia**, are now mainly found in **south and southeast Asia**, with northern populations in China.

- In India, they are clustered in the **Western and Eastern Ghats, central India, and northeast India**, with Karnataka, Maharashtra, and Madhya Pradesh playing a crucial role in their conservation, according to a 2020 study.

➤ Conservation:

- **Wildlife Protection Act, 1972: Schedule 2.**
- **International Union for Conservation of Nature's Red List: Endangered.**
- **The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix II.**
- The creation of reserves under **Project Tiger** provided some protection for dhole populations sympatric with tigers.
 - In 2014, the Indian government sanctioned its first **dhole conservation breeding center** at the Indira Gandhi Zoological Park (IGZP) in Visakhapatnam.
- Manas National Park:
 - It is a national park, **Project Tiger Reserve**, an **elephant reserve** and a **biosphere reserve** in Assam, India. It borders the Royal Manas National Park in Bhutan.
 - It was declared a **national park in 1990** and earned the badge of **UNESCO World Heritage Site in 1988**.
 - Manas National Park is home to a varied species of Fauna of the likes of the **Indian One Horned Rhinoceros, Asiatic Elephants, Tigers, Clouded Leopards, Hoolock Gibbons**, etc.

Ganges River Dolphin

Why in News?

A recent scientific publication titled "**Rescuing Ganges river dolphins from irrigation canals in Uttar Pradesh, 2013-2020**" has elucidated the comprehensive endeavors focused on the **rescue and relocation of Gangetic river dolphins** from precarious situations within the **irrigation canals of the Ganga-Ghagra basin**.

What are the Major Highlights of the Report?

- **Dams and barrages** have severely affected the habitat of the dolphins, forcing them to move into irrigation canals where they are at risk of injury or death.

Note:



drishti

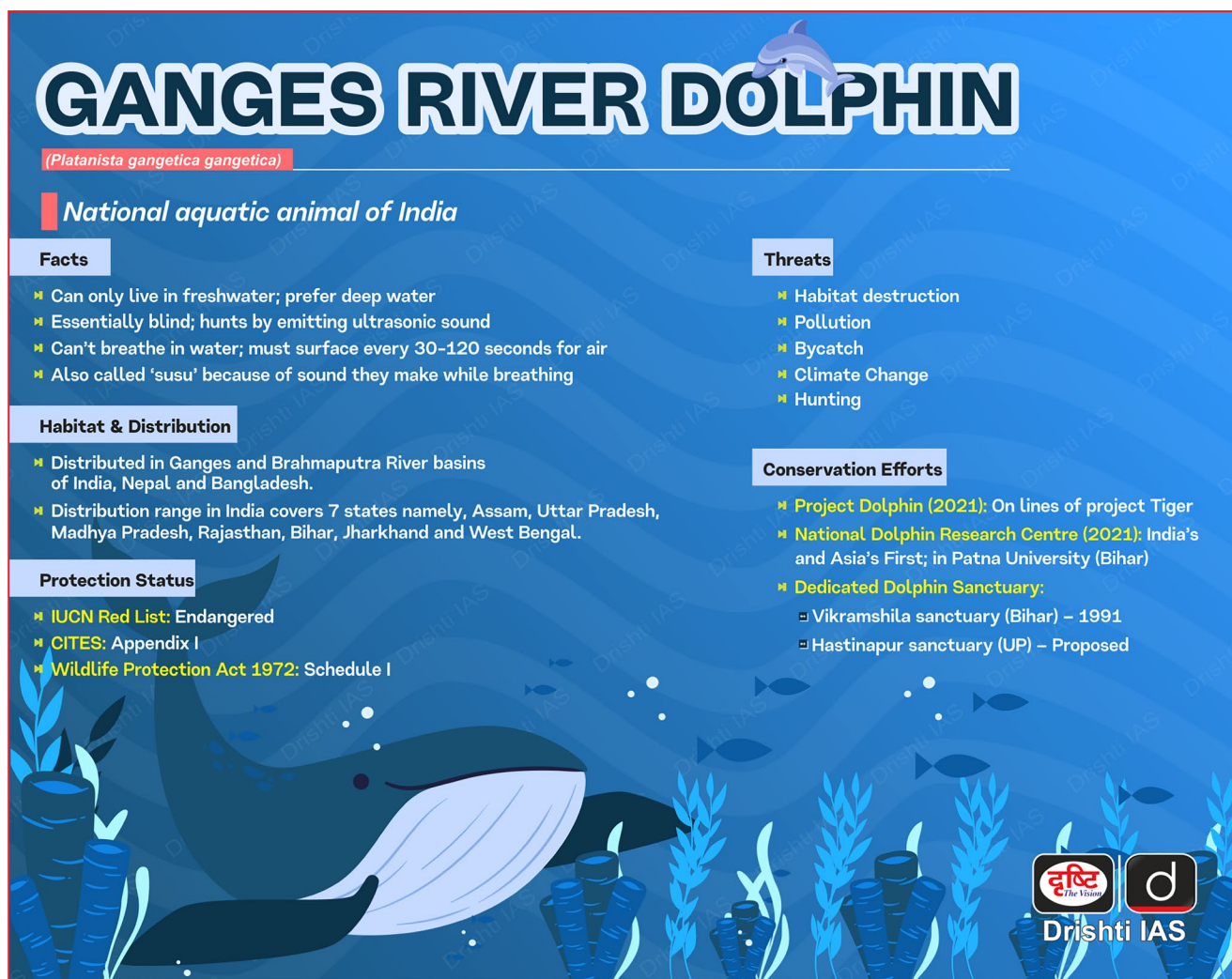
- Over **70% of entrapments** were reported **either post-monsoon or during peak winter**, while the other **30% of dolphins were rescued during peak summer** when water levels fall and the minimum water flow is maintained.
- **19 Gangetic river dolphins** were rescued from irrigation canals in the **Ganga-Ghagra basin** in Uttar Pradesh between 2013 and 2020.

What are the Major

Points Related to Ganga River Dolphin?

➤ About:

- The Ganga River Dolphin (*Platanista gangetica*), also known as the **"Tiger of the Ganges"** was officially discovered in **1801**.



GANGES RIVER DOLPHIN

(*Platanista gangetica gangetica*)

National aquatic animal of India

Facts

- Can only live in freshwater; prefer deep water
- Essentially blind; hunts by emitting ultrasonic sound
- Can't breathe in water; must surface every 30-120 seconds for air
- Also called 'susu' because of sound they make while breathing

Habitat & Distribution

- Distributed in Ganges and Brahmaputra River basins of India, Nepal and Bangladesh.
- Distribution range in India covers 7 states namely, Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal.

Protection Status



- **IUCN Red List:** Endangered
- **CITES:** Appendix I
- **Wildlife Protection Act 1972:** Schedule I

Threats

- Habitat destruction
- Pollution
- Bycatch
- Climate Change
- Hunting

Conservation Efforts

- **Project Dolphin (2021):** On lines of project Tiger
- **National Dolphin Research Centre (2021):** India's and Asia's First; in Patna University (Bihar)
- **Dedicated Dolphin Sanctuary:**
 - ▢ Vikramshila sanctuary (Bihar) – 1991
 - ▢ Hastinapur sanctuary (UP) – Proposed

Drishti IAS

- **Habitat:** Ganges river dolphins historically distributed in major river systems (**Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu**) of India, Nepal and Bangladesh.
 - According to the recent study in the Ganga River Basin, the species recorded from the main stream of Ganga River followed by the tributaries, **Ghagra, Kosi, Gandak, Chambal, Rupnarayan, and Yamuna**.
- **Features:**

- The Ganges river dolphin can **only live in freshwater** and is essentially blind. They hunt by emitting **ultrasonic sounds**, which bounces off of fish and other prey, enabling them to **"see" an image in their mind**.
- They are frequently found alone or in small groups, and generally a mother and calf travel together.
 - **Females are larger than males** and give birth once every two to three years to only one calf.

Note:

- Being a mammal, the **Ganges river dolphin cannot breathe in water** and must surface every 30-120 seconds.
 - Because of the sound it produces when breathing, the **animal is popularly referred to as 'Susu'**.
- **Importance:**
 - They have significant importance because it is a **reliable indicator of the health of the entire river ecosystem**.
 - The government of India declared it the **National Aquatic Animal in 2009**.
 - It is also the **State Aquatic Animal of Assam**.
- **Major Threats:**
 - Unintentional killing through **entanglement in fishing gear**.
 - Poaching for **dolphin oil**, used as fish attractant and for medicinal purposes.
 - Habitat destruction due to **development projects** (e.g. water extraction and the construction of barrages, high dams and embankments), **pollution** (industrial waste and pesticides, municipal sewage discharge and noise from vessel traffic).
- **Protection Status:**
 - **International Union for the Conservation of Nature (IUCN)**: Endangered
 - **Indian Wildlife (Protection) Act 1972** : Schedule I
 - **Convention on International Trade in Endangered Species (CITES)** : Appendix I
 - **Convention on Migratory Species (CMS)**: Appendix 1
- **Related Government Initiatives:**
 - **Project Dolphin**
 - **Vikramshila Ganges Dolphin Sanctuary has been established in Bihar**.
 - **National Ganga River Dolphin Day (5th October)**

Dandeli Forest

Why in News?

The Dandeli forest in Karnataka's Uttara Kannada district, known for its diverse wildlife and ecosystem, faces substantial environmental shifts due to changing climate patterns and human interventions.

What are the Key Points Related to Dandeli Forest?

- Dandeli forest is located in the Uttara Kannada district

of Karnataka and is part of the Western Ghats, a globally recognized **biodiversity hotspot**.

- The forest is known **for its rich biodiversity**, including a diverse range of flora and fauna, making it an important wildlife habitat.
- The **Kali Tiger Reserve** is a protected area **adjacent to the Dandeli Forest..**
 - The Tiger Reserve comprises two important protected areas of the region viz., **Dandeli Wildlife Sanctuary and Anshi National Park**.

What are the Concerns Related to the Dandeli Forest Ecosystem?

- **Impact of Climate Change:**
 - Changing rainfall patterns and rising temperatures due to climate change have **led to alterations in the forest ecosystem** and a decrease in grasses in recent years.
- **Invasive Species - Eupatorium Weed:**
 - The invasive eupatorium weed is replacing native grasses in the forest undergrowth, **impacting herbivores** as it is not a preferred food source and is susceptible to fires.
- **Historical Changes:**
 - Historical changes, including forest transformations during the colonial era, have affected the forest's character, changing it from semi-evergreen to moist deciduous forests.
- **Forest Fires and Environmental Impact:**
 - The suppression of controlled fires (**Slash and Burn**) during the British era and the introduction of non-native eupatorium weed have led to uncontrolled forest fires, affecting the forest ecosystem.
- **Impact on Herbivores and Predators:**
 - Decreased grasses have impacted the herbivore population, influencing the prey base for predators like leopards and tigers, resulting in increased conflicts with humans and predation on local cattle.

Metal Mining Pollution

Why in News?

Recently, the University of Lincoln, the United Kingdom, has published a study, spotlighting the **extensive ramifications of Metal Mining Pollution** in rivers and Floodplains worldwide.

Note:



drishti

What is the Research Methodology of the Study?

- The research simulated **contamination from both operational and decommissioned Metal Mining Sites**, encompassing critical aspects such as tailings facilities designed for waste storage.
- The study meticulously evaluated **hazardous substances** including **lead, zinc, copper, and arsenic**.
 - These elements, **detrimental to both ecosystems and human health**, tend to accumulate downstream from mining sites over prolonged durations.
 - This underscores the lasting and far-reaching consequences of mining pollution.
- The research team, acknowledging data limitations in certain countries, considered the figures **presented to be conservative estimates**.
 - This signifies the potential for the actual impact to be even more extensive, underlining the need for comprehensive and accurate data for a thorough assessment.

What are the Key Highlights of the Study?

- **Extent of Pollution Exposure:**
 - Pollution stemming from the **continuous discharge of mining waste into rivers** affects an astonishing number of people, **nearly 50 times more than those immediately impacted** by tailings Dam (embankment used to store byproducts of mining) Failures.
- **Population and Ecosystem Impact:**
 - The impacted floodplains due to the Mining Waste house a **substantial population of about 23.48 million people**, in addition to sustaining a significant livestock population of 5.72 million.
 - Moreover, these **regions cover an expansive area exceeding 65,000 square kilometers** of irrigated land.
- **Significance of the Study:**
 - The provides a groundbreaking predictive model to **assess the far-reaching offsite and downstream impacts of mining** on ecosystems and human health.
 - It offers a **critical tool for governments, environmental regulators**, the mining industry, and local communities to make informed decisions, emphasizing the necessity to prioritize environmental sustainability.

- This research is paramount in guiding the global transition to green energy while mitigating the ecological footprint of mining, **particularly in the modern era where sustainable mining practices are increasingly prioritized**.

➤ **Call for Action:**

- The study concluded by advocating for enhanced global data collection and monitoring systems to better comprehend the ecological and health impacts of the metal mining industry.
- This highlights the need for a more comprehensive understanding to address the associated hazards effectively.

What is Metal Mining Pollution?

➤ **About:**

- Metal mining pollution refers to the **contamination and environmental degradation** caused by the **extraction and processing of Metallic Ores** to obtain valuable metals.
- It involves various activities associated with **mining, including exploration, extraction, transportation, processing, and waste disposal**.
- These processes often **release harmful substances into the air, water, and soil**, leading to adverse effects on ecosystems, human health, and wildlife.

➤ **Sources of Metal Mining Pollution:**

- **Tailings:** Tailings are finely ground rock particles left over after the valuable **metals have been extracted** from the ore. These tailings often contain **hazardous elements** like mercury, arsenic, lead, cadmium, and other toxic substances that can contaminate nearby water sources and soil.
- **Acid Mine Drainage (AMD):** AMD occurs when **sulfide minerals in the mined rocks are exposed to air and water**, leading to the production of sulfuric acid.
 - This acid can contaminate rivers, streams, and groundwater, posing a significant threat to aquatic life and ecosystems.
- **Airborne Pollution:** Dust and particulate matter generated during mining operations can become airborne, spreading pollutants **such as heavy metals and other harmful compounds**. Inhalation of these pollutants can pose health risks to both miners and nearby communities.

Note:



drishti

- **Chemical Usage:** Chemicals such as cyanide and sulfuric acid are often used in metal extraction processes. **Accidental spills or inadequate containment** of these chemicals can result in contamination of soil and water, causing serious environmental damage.

How can Metal Mining Pollution be Addressed?

- **Stringent Regulations and Compliance:**
 - Implement and enforce strict environmental regulations and standards that govern metal mining operations.
 - These regulations should cover waste disposal, emissions, water management, and reclamation to ensure compliance and minimize pollution.
- **Advanced Waste Management:**
 - Encourage the use of modern tailings storage facilities and waste disposal methods that minimize the risk of pollution. Employ strategies to prevent tailings dam failures, such as proper design, monitoring, and periodic assessments.
- **Responsible Chemical Usage:**
 - Promote the **responsible and controlled use of chemicals** in mining processes. Alternative, less toxic chemicals should be explored and utilized to reduce the environmental impact.
- **Water Management and Treatment:**
 - Implement **effective water management strategies** to control and treat water discharged from mining operations. Employ water treatment technologies to remove harmful substances before releasing water into the environment.
- **Mine Reclamation and Rehabilitation:**
 - Make mine **reclamation and rehabilitation an integral part** of mining operations. Restore mined areas to their natural state, promoting ecosystem recovery and biodiversity.

Platypus

Why in News?

Recent research sheds light on a troubling situation related to **water-dwelling animal, Platypuses (*Ornithorhynchus anatinus*)**, following the **2019–20 Black Summer bushfires in eastern Australia**.

- Despite their aquatic habitat, **platypus populations are dwindling in the post-fire environment**. This study delves into the implications for the conservation of these unique creatures.



Environmental DNA (eDNA) was used to detect platypus presence in the study.

What are the Major Points Related to Platypus?

- **About:**
 - **Platypuses** are unique to **Australia**. Its streamline body and a broad, flat tail are covered with dense waterproof fur, which provides excellent thermal insulation.
 - They possess webbed feet for swimming and **electroreceptors** in their bills to find food in rivers and streams.
 - Along with **echidnas**, Platypuses are grouped in a separate order of mammals known as **monotremes**, which are **distinguished from all other mammals because they lay eggs**.
 - Also, **males have a venomous spur** on their ankles, a unique feature among mammals, that they primarily used during the breeding season.
 - While not **lethal**, the venom can cause severe pain and swelling in humans.
- **Habitat and Distribution:**
 - Platypuses inhabit **freshwater systems** across a wide range of Australian landscapes.
 - They can be found in **tropical rainforest lowlands**, plateaus of northern Queensland, and even cold, **high-altitude regions like Tasmania and the Australian Alps**.
- **Seasonality and Behavior:**
 - Platypuses are active year-round, with a preference for **twilight and nighttime activity**.
 - Platypuses spend much of their time in **burrows along riverbanks** or in rocky crevices and stream debris.
- **Feeding Habits:**
 - Platypuses primarily feed at night on a wide variety of **aquatic invertebrates**.

Note:

- They feed on **insect larvae, shrimps, swimming beetles**, water bugs, tadpoles, worms, and more.
- Larger prey is taken individually and **consumed after floating on the water surface**.
- **Predators and Threats:**
 - Predators include **crocodiles, goannas, carpet pythons, eagles**, and large native fish.
 - Land-based predators like **foxes, dogs, and dingoes** may pose a threat.
 - **Ectoparasites, tick species, and fungal infections** can also affect platypuses.
- **Conservation Status:**
 - **IUCN Red List:** Near Threatened.

What is Environmental DNA?

- DNA, short for **deoxyribonucleic acid**, is the hereditary material in organisms that contains the biological instructions for building and maintaining them.
 - **Environmental DNA (eDNA)** is **nuclear or mitochondrial DNA** that is released from an organism into the environment.
 - Sources of eDNA include **secreted feces, mucous, and gametes**, shed skin and hair.
- In aquatic environments, eDNA is diluted and distributed by currents and other hydrological processes, but it only lasts about 7–21 days, depending on environmental conditions.

Illicit Trade of Tortoises and Hard-Shell Turtles

Why in News?

A recent study titled *'From Pets to Plates,'* published in **Oryx, The International Journal of Conservation**, has provided insights into the **illicit trade of tortoises and hard-shell turtles**.

- The study was conducted by experts associated with the Counter Wildlife Trafficking Programme of the Wildlife Conservation Society-India.

What are the Key Highlights of the Report?

- **Chennai Leads the Network:**
 - **Chennai emerges as the primary node** in the tortoise and hard-shell turtle trafficking network.
 - The city plays a central role in the global pet trade, facilitating the illicit trade in these reptiles.

- Mumbai, Kolkata, Bengaluru, Anantapur, Agra, North 24 Parganas (in West Bengal), and Howrah (near the India-Bangladesh border) are also crucial in the network, contributing significantly to the trafficking of tortoises and turtles.
- **Predominantly Domestic Soft-Shell Turtle Trafficking:**
 - Soft-shell turtle trafficking is **primarily domestic** in nature. International trafficking of soft-shell turtles to and from India is **mostly limited to Bangladesh**.
- **The Asian Turtle Crisis:**
 - Wild populations of tortoises and freshwater turtles face immense pressure from **illegal trade for pets, food, and medicines**.
 - At least **15 of the 30 threatened TFT (Tortoises and Freshwater Turtles) species** in India are illegally traded.
 - Freshwater species, such as the **Indian flapshell turtles**, are in great demand in illegal markets.
 - The Indian Softshell turtle, also known as the **Ganges Softshell turtle**, is a **freshwater reptile** found in the **Ganges, Indus** and **Mahanadi rivers** in northern and eastern India.
- **Comparing Networks:**
 - The study found that the **tortoise and hard-shell turtle network had a more extensive geographical scale** with more international trafficking links compared to the soft-shell turtle network.
 - Complex routes were recorded in tortoise and hard-shell turtle smuggling, whereas soft-shell turtle trafficking primarily followed a one-directional route from source to destination.
- **Dire Condition of Trafficked Turtles:**
 - Turtles involved in the illegal trade often arrive dehydrated, starved, and with injuries.
 - High mortality rates among trafficked turtles highlight the urgency of addressing this issue.

Tortoise and Hard-Shell Turtles:



- All tortoises are turtles as they belong to the order Testudines/Chelonia.
- Tortoises are distinguished from other turtles by **being land-dwelling**, while many (though not all) other **turtle species are at partly aquatic**.
- Hard-shell turtles have rigid and bony shells that provide protection and cannot be easily compressed.

Note:

- According to the **International Union for Conservation of Nature (IUCN)** most of the species of turtles and tortoises are vulnerable, endangered or critically endangered.
- **Indian star tortoise**, **Olive Ridley Turtle**, and **Green Turtle** are a few examples of Tortoise and Hard-Shell Turtles in India.

Soft-Shell Turtle:

- Softshell turtles are a large group of reptiles in the family **Trionychidae**.
- They are called softshells because their shells lack **hard scales**, and are instead **leathery and flexible**.
- They often lie buried in mud, sand, and shallow water.
- Commonly found Soft-Shell Turtles in India are **Indian Flapshell Turtles**, **Indian peacock softshell turtles**, and **Leith's Soft-shelled Turtle**.

Characteristic	Tortoises	Turtles
		
Shell Shape	High-domed, rounded, heavy shell	Thinner and more streamlined
Habitat	Primarily terrestrial (land-dwelling)	Adapted for life in water
Diet	Primarily herbivorous	Omnivorous or herbivorous
Limbs	Thick, columnar legs, claw-like toes	Flipper-like legs, webbed feet

Methane Emissions from Livestock

Why in News?

A recent **Food and Agriculture Organization (FAO)** report, titled **"Methane Emissions in Livestock and Rice Systems,"** highlights the significant climate impact of methane emissions from livestock and rice paddies.

- Released during FAO's inaugural 'Global Conference on Sustainable Livestock Transformation' in September 2023, the report emphasizes the importance of reducing methane emissions in achieving the **Paris Agreement's goals**, as noted in the **Intergovernmental Panel on Climate Change's Sixth Assessment Report**.

What are the Key Findings from the Report?

- **Sources of Methane Emissions:**
 - Ruminant livestock and manure management contribute to approximately **32% of global anthropogenic methane emissions**.

- **Rice paddies** account for an **additional 8% of methane emissions**.
- Besides agrifood systems, other human activities that generate methane emissions include **landfills, oil and natural gas systems, coal mines and more**.

➤ Note:

- Ruminants are mammals of the **suborder Ruminantia (order Artiodactyla)**.
 - They encompass a diverse group of animals such as **giraffes, okapis, deer, cattle, antelopes, sheep, and goats**.
- Most ruminants have a **four-chambered stomach and two-toed feet**. Camels and chevrotains, however, have a three-chambered stomach and are often referred to as **pseudoruminants**.

➤ Impact of Ruminant Livestock:

- Among ruminants, **cattle are the highest daily emitters of methane**, followed by **sheep, goats, and buffalo**.

Note:



drishti

- Ruminant meat and milk are significant protein sources, and global demand for animal products is expected to **rise by 60-70% by 2050**.
- **Improving Feed Efficiency:**
 - Report focuses on improving feed to **reduce methane emissions by enhancing feed efficiency**.
 - This involves **increasing nutrient density, and feed digestibility**, altering rumen microbial composition, and selectively breeding animals with negative residual feed intake and smaller metabolic body weight.
 - Enhanced feed efficiency **boosts animal productivity per unit of feed**, potentially **increasing farm profitability** based on feed costs and meat/milk revenues.
- **Need for Regional Studies:**
 - The report underscores the need for **regional studies** to quantify the effects of improved nutrition, health, reproduction, and genetics to increase animal production and decrease methane emission.
 - Such studies would help assess the impact of mitigation strategies on net greenhouse gas emissions at a regional level.
- **Strategies for Mitigating Methane Emissions:**
 - The study noted four broad strategies in mitigating methane emissions:
 - Animal breeding and management.
 - Feed management, diet formulation and precision feeding.
 - Forages.
 - Rumen manipulation.
- **Challenges and Research Gaps:**
 - Challenges include the lack of regional information to **calculate carbon footprints** and limited economically affordable methane mitigation solutions.
 - Further research is needed to develop practical and cost-effective measures.

Methane:

- Methane is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms (CH₄).
 - It is flammable, and is used as a fuel worldwide.
- Methane is a **powerful greenhouse gas (GHG)**, which has an atmospheric lifetime of **around a decade** and affects the **climate for hundreds of years**.

- Methane has more than 80 times the warming power of carbon dioxide over the first 20 years of its lifetime in the atmosphere.
- The common sources of methane are oil and natural gas systems, agricultural activities, coal mining and wastes.

What are the Initiatives to Tackle Methane Emissions?

- **Indian:**
 - **'Harit Dhara' (HD):**
 - Indian Council of Agricultural Research (ICAR) has developed an anti-methanogenic feed supplement **'Harit Dhara' (HD)**, which can cut down cattle methane emissions by 17-20% and can also result in higher milk production.
 - **The National Mission on Sustainable Agriculture (NMSA):**
 - It is implemented by the Ministry of Agriculture and Farmers Welfare, involves **climate resilient practices** including methane reduction practices in **rice cultivation**.
 - These practices contribute to substantial reduction of methane emissions.
 - **National Innovations in Climate Resilient Agriculture (NICRA):**
 - Under the **NICRA project**, the **Indian Council of Agricultural Research (ICAR)** has developed technologies to mitigate methane emissions from rice cultivation. These technologies include:
 - **System for Rice Intensification:** This technique can increase rice yield by 36-49% while using 22-35% less water compared to conventional transplanted rice.
 - **Direct Seeded Rice:** This method reduces methane emissions by eliminating the need for raising nurseries, puddling, and transplanting. Unlike traditional paddy cultivation.
 - **Crop Diversification Programme:** By shifting from paddy cultivation to alternative crops like pulses, oilseeds, maize, cotton, and agroforestry, methane emissions are minimized.
 - **Bharat Stage-VI Norms:**
 - India shifted from **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI)** emission norms.

Note:

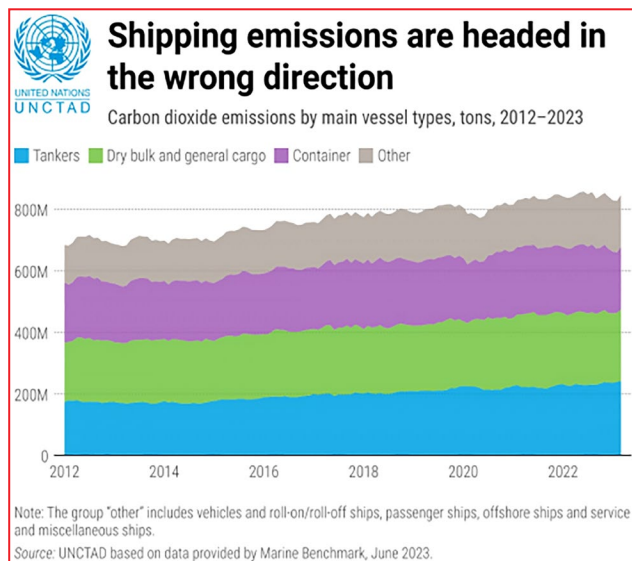
➤ Global:

- **Methane Alert and Response System (MARS):**
 - MARS will integrate data from a large number of existing and future satellites that have the ability to detect methane emission events anywhere in the world, send out notifications to the relevant stakeholders to act on it.
- **Global Methane Pledge:**
 - At the **Glasgow climate conference (UNFCCC COP 26)** in 2021, **nearly 100 countries had come together in a voluntary pledge**, referred to as the Global Methane Pledge, to cut methane emissions by at least 30% by 2030 from the 2020 levels.
 - **India is not a part of Global Methane Pledge.**
- **Global Methane Initiative (GMI):**
 - It is an international public-private partnership focused on reducing barriers to the recovery and use of methane as a clean energy source.

Review of Maritime Transport 2023: UNCTAD

Why in News?

Recently, the **United Nations Conference on Trade and Development (UNCTAD)** has released the **Review of Maritime Transport 2023**, highlighting the Issue of **Greenhouse Gas (GHG) Emissions** from **International Shipping** and Challenges in **Decarbonization**.



What are the Key Highlights of the Review?

- **Emissions from International Shipping:**
 - GHG emissions from international shipping were 20% higher in 2023 compared to a decade ago.
 - The shipping industry contributes to over **80% of the world's trade volume** and nearly 3% of global GHG emissions.
- **Growth in Shipping Volume:**
 - Global maritime shipping volumes experienced a **0.4% drop in 2022** due to disruptions in global supply chains **caused by Covid-19**.
 - However, it is **projected to grow by 2.4% in 2023**.
 - Containerized trade is **expected to grow by 1.2% in 2023** and further by 3% between 2024–2028.
 - Oil and gas trade volumes showed robust growth in 2022.
- **Non-Availability of Alternative Fuels:**
 - Early in January 2023, commercial ships were on **average 22.2 years old** and more than half of the **world's fleet was over 15 years old**.
 - As the average age of the world fleet is increasing, it raises concern that **alternative fuels are not yet available at scale** and are more costly, and the ships that can use them are **also more costly than traditional ships**.
- **Transitioning to Alternative Fuels:**
 - It is very difficult for ship owners to **renew their fleet without clarity on technology and regulatory regimes**, and port terminals also face **similar challenges**, particularly **with regard to investment decisions**.
 - **98.8% of the global fleet uses conventional fuels** like heavy fuel oil, light fuel oil, and diesel/gas oil.
 - **Only 1.2% are using alternative fuels**, mainly LNG, LPG, methanol, and to a lesser extent, battery/hybrid.
 - However, progress is underway as **21 % of vessels currently on order are designed to run on alternative fuels**, notably LNG, LPG, battery/hybrid and methanol.
- **Cost Estimates and Transition Challenges:**
 - Decarbonizing the world's fleet by 2050 could require annual investments ranging from USD 8 billion to USD 90 billion.
 - Full decarbonization could double yearly fuel costs, necessitating a just transition for the sector.

Note:

- **IMO (International Maritime Organization)** has set a target to achieve net-zero GHG emissions by around 2050.
- The **2023 IMO GHG Strategy** aims for at least **5-10% uptake of zero or near-zero GHG fuels by 2030.**

What are the UNCTAD's

Recommendations for Economic Incentives?

- Renewable ammonia and methanol fuels are seen as more suitable for newer ships with dual-fuel engines.
- Sustainable marine fuels should achieve zero or near-zero carbon dioxide equivalent emissions on a life-cycle 'well-to-wake' basis.
- UNCTAD advocates for **system-wide collaboration**, swift regulatory intervention and stronger investments in green technologies and fleets.
- Economic incentives, such as levies or contributions related to shipping emissions, can promote the competitiveness of alternative fuels and support investments in climate-resilient infrastructure.
- There is a need to **balance environmental goals** with economic needs but underscores that the cost of inaction **far outweighs the required investments.**
- Beyond cleaner fuels, the Shipping industry needs to **move faster towards digital solutions like AI and blockchain** to improve efficiency as well as sustainability.

What are the Initiative of International bodies to Decarbonize International Shipping?

- **Energy Efficiency Existing Ship Index (EEXI):**
 - IMO is revising its existing carbon intensity regulations for ships with EEXI, which limits the **technical carbon intensity of the ship** by limiting how much carbon dioxide the ship is designed to emit based on its size and ship type, and the **Carbon Intensity Indicator (CII), which grades ships from A-E based on their operational carbon intensity**, based on how much fuel the ships use each year.
- **IMO's Mid-Term Measures:**
 - Additionally, IMO is developing new regulations called Mid-Term Measures, which will include a technical element, most likely a **Greenhouse Gas Fuel Standard (GFS)**, as well as an **economic element**, such as a carbon levy, a feebate system, or cap-and-trade.

- The IMO aims to agree on **these measures by 2025** and have them enter into force in 2027.

➤ **The Green Voyage 2050 Project:**

- It is a partnership project between the Government of Norway and IMO launched in May 2019 aiming to transform the **shipping industry towards a lower carbon future.**

➤ **International Convention for the Prevention of Pollution from Ships (MARPOL Convention):**

- MARPOL convention is the **main international convention covering** prevention of pollution of the marine environment by ships from operational or accidental causes.
- The MARPOL Convention was adopted on **2nd November 1973** at IMO.

Tiger Deaths Raise Concerns in Nilgiris Biodiversity

Why in News?

The Nilgiris District in Tamil Nadu is home to a rich biodiversity and a large population of **tigers**. However, in the past two months, **10 tigers have died** in the district due to various reasons.

- This has raised concerns among conservationists and officials about the welfare and survival of the big cats.

What are the Reasons for Tiger Deaths in Nilgiris?

- **High Density of Tigers:**
 - The **high density of tigers in the Mudumalai-Bandipur-Nagarhole complex** of the **Nilgiri Biosphere Reserve** is pushing populations into the surrounding habitats in the **Mukurthi National Park, Nilgiris and Gudalur forest divisions** leading to more **negative human-animal interactions.**
 - The rise in tiger numbers puts pressure on prey species like **spotted deer, and Indian gaur.**
 - Scarcity of natural prey could lead tigers to **target livestock, exacerbating conflicts and resulting in more deaths.**
- **Starvation and Infection:**
 - Tiger cubs, believed to be two weeks old, found dead in the Mudumalai Tiger Reserve's buffer zone.
 - Postmortem suggested possible causes as **starvation or umbilical infection.**

Note:



drishti

TIGER

Royal Bengal Tiger (*Panthera tigris*) is the National animal of India.

Subspecies of Tiger

- * The continental (*Panthera tigris tigris*)
- * The Sunda (*Panthera tigris sondaica*)

Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas



Countries Where Tiger Population Is Found

- Found only in 13 Tiger Range countries- India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
- As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

Protection Status

- IUCN Red List: Endangered
- CITES: Appendix I
- WPA 1972: Schedule I

Threats

- Habitat loss
- Poaching and illegal trade
- Human-Wildlife conflict

Conservation Efforts

- International Big Cats Alliance (IBCA):** For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- Tx2 campaign:** Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- National Tiger Conservation authority (NTCA):** Constituted under the WPA, 1972
- Project Tiger:** Launched in 1973
- Tiger Census:** Every 4 years

Tigers In India

- India has the **largest** population
 - As of 2022, India has 3167 tigers
 - Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- Tiger Reserves:** India now has 53 tiger reserves
 - Ranipur in UP is the latest
 - Nagarjun Sagar (Andhra Pradesh) is the largest while Orang (Assam) is the smallest (Core area)



Why are Conservationists

Concerned About Tiger Population Threats?

- **Poaching Threat:** Recent poaching incidents in the Nilgiris district, underscore the persistent threat to tigers.
 - Poachers target tigers for their valuable body parts, such as skins, bones, and organs, posing a grave risk to the population.

- **Lack of Tracking and Protection:** Concerns arise from the apparent challenges in tracking and protecting tiger populations effectively.
 - The inability to monitor and safeguard these majestic animals contributes to conservationists' worries.
- **Lack of Prey Management:** Inadequate prey population management in protected areas may lead to imbalances.

Note:

- Ensuring sufficient prey for tigers is essential for their survival.
- **Habitat Degradation:** Degraded habitats offer limited resources, forcing tigers to roam in search of food.
 - Human activities, deforestation, and encroachments contribute to habitat loss.

Nilgiri Biosphere Reserve

➤ About:

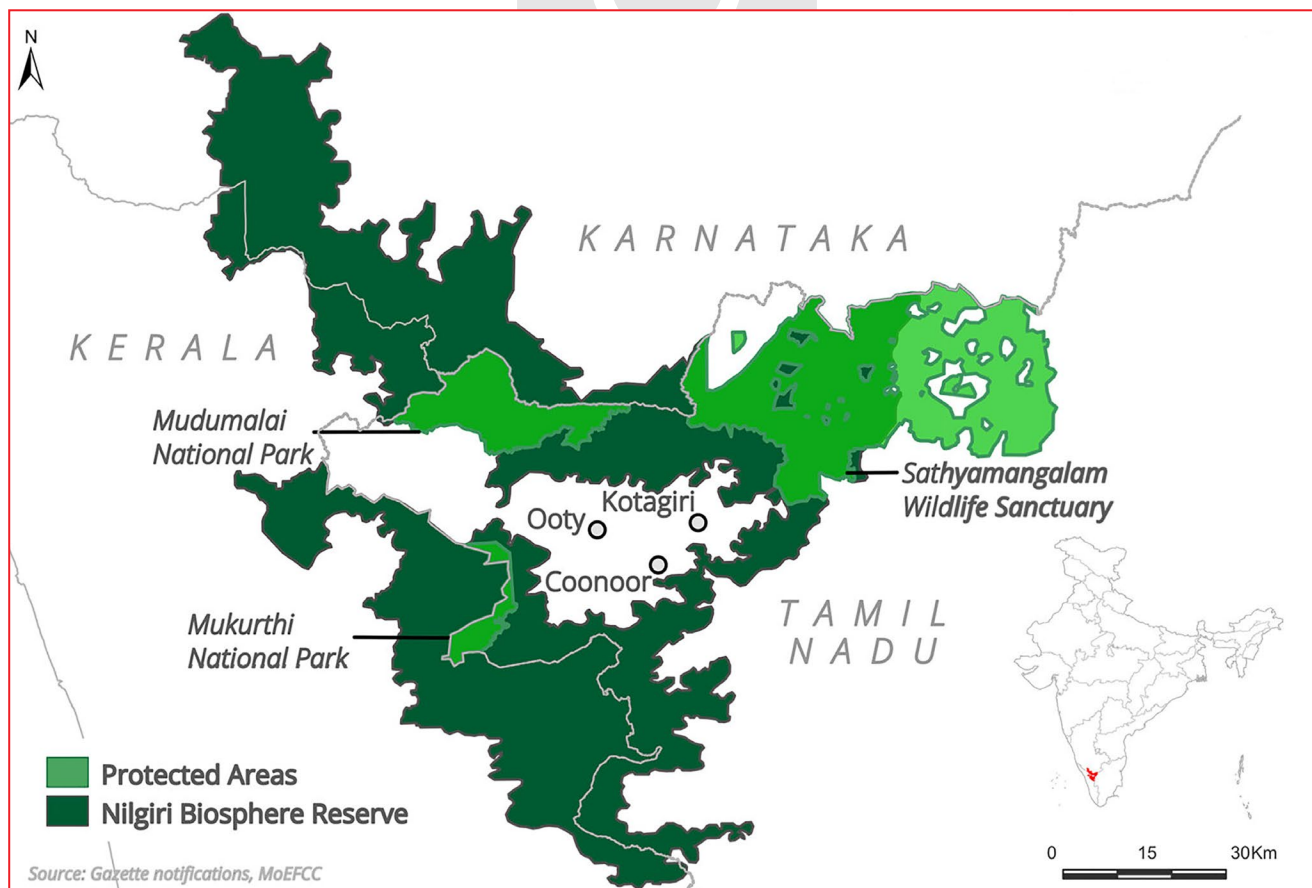
- The very name **Nilgiris** with literary meaning 'blue mountains' has originated from the appearance of **blue flower clad mountains (Neelakurinji flowers)** of the Nilgiris plateau within the State of Tamil Nadu.
 - The reserve spans across three Indian states: **Tamil Nadu, Karnataka, and Kerala.**
- It was the **first biosphere reserve in India established in 1986.**
- It is the **India's first biosphere reserve under UNESCO's Man and the Biosphere Programme.**
- Home to several tribal groups such as the **Adiyan, Aranadan, Kader, Kurichian, Kuruman, and Kurumbas.**
- It portray the confluence of **Afro-tropical and Indo-Malayan biotic zones** of the world.

➤ Fauna:

- Animals like **Nilgiri tahr**, Nilgiri langur, slender loris, blackbuck, tiger, gaur, **Indian elephant** and marten are found here.
- Freshwater fishes such as Nilgiri danio (*Devario neilgherriensis*), Nilgiri barb (*Hypselobarbus dubuis*) and Bowany barb (*Puntius bovanicus*) are endemic to this Biosphere Reserve.

➤ Protected Areas in NBR:

- The **Mudumalai Wildlife Sanctuary, Wayanad Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park and Silent Valley** are the protected areas present within this reserve.



Note:

Security

Highlights

- Integration Among Defence Forces

Theaterisation of Armed Forces



What is Theaterisation?

It is a concept that **seeks to integrate the capabilities of the three services** -- army, air force and navy -- and **optimally utilise their resources** for wars and operations.

There will be **specific theatre commands – or units – could be geographical** – like looking at a border with a particular country – **or thematic**, like a command for all maritime threats.

The **Chief of Defence Staff (CDS)** has been given task of establishment of joint/ theatre commands.

Several nations have theatre commands, **including the US and China**.



What are the Advantages?

- Synergy among all branches of Indian Armed Forces
- Cohesive and Compact Fighting Force
- Utilising the Logistics of all three Services
- Improved Troop Acclimatisation
- Theatre-Specific Resource Optimization
- Speedy Mobilisation and Intel Sharing



What are the Challenges?

- Budgetary Allocations and the Distribution of Finances
- Assets becoming dispersed by multiplication of theatre commands
- Nomenclature and Jurisdiction of Commands
- Leadership of Theatre commands
- Dilution of powers of Armed Services Chiefs

What is the Current Command Structure?

17 single-service commands

- ▶ Army- 7
- ▶ Navy- 7
- ▶ Air Force- 3

Two tri-Service Commands [Strategic Forces Command] and the Andaman and Nicobar Command

Shekatkar Committee Recommendation (2015)

Creation of 3 integrated theatre commands

- ▶ Northern - China border
- ▶ Western - Pakistan border
- ▶ Southern- Maritime Security



Drishti IAS

Note:

Integration Among Defence Forces

Why in News?

Recently, the **Chief of Defence Staff (CDS)** highlighted that **nine verticals have been identified for integration among three defense services** which includes logistics, intelligence, information flow, training, administration, supply chain management and maintenance etc. among others.

- The process of '**theatrisation**', part of a reorganization effort undertaken by the armed forces, which will be fulfilled through integration of the defense forces and the creation of **Integrated Theatre Commands**.

What is the Integration

Among Three Defense Services ?

- Integration of three defense services in India involves establishment of **Integrated Theatre Commands (ITCs)**, office of the **Chief of Defense Staff, Cyber and Space Commands**, and resource sharing and joint training and exercises among others.
- **Integrated Theatre Command:**
 - An integrated theatre command envisages a **unified command of the three Services, under a single commander**, for geographical theatres (areas) that are of strategic and security concern.
 - The commander of such a force will be able to bear all resources at his disposal — from the Army, the Indian Air Force, and the Navy — with **seamless efficacy**.
 - The integrated theatre commander **will not be answerable to individual Services**.
 - Integration and jointness of the three forces will **avoid duplication of resources**. The resources available under each service will be available to other services too.
 - The services will get to know one another better, **strengthening cohesion** in the defense establishment.
 - The **Shekatkar committee** has recommended the **creation of 3 integrated theatre commands** — **northern** for the China border, **western** for the Pakistan border, and **southern** for the maritime role.

- **Joint Command in Andaman & Nicobar islands:**
 - There is one **joint command in Andaman and Nicobar Islands**.
 - It is the **first Tri-Service theatre command** of the Indian Armed Forces, based at Port Blair in the Andaman and Nicobar Islands of India.
 - It was **created in 2001 to safeguard India's strategic interests in Southeast Asia and the Strait of Malacca** by increasing the rapid deployment of military assets in the islands.
- The other tri-service command, the **Strategic Forces Command (SFC)**, looks after the delivery and operational control of the country's nuclear assets.
- **Current Situation:**
 - The Indian armed forces **currently have 17 commands**. There are 7 commands each of the Army and the Air Force. The Navy has 3 commands.
 - Each command is headed by a **4-star rank military officer**.

What are the Recent Developments in Integration Among the Three Services?

- The appointment of the **CDS** and the creation of the **Department of Military Affairs (DMA)** are momentous steps towards the integration and advancement of defence forces.
 - Work exclusively pertaining to military matters will fall within the purview of the DMA. Earlier, these functions were the mandate of the Department of Defence (DoD).
 - **CDS:** It is the single-point military adviser to the government as suggested by the **Kargil Review Committee in 1999**.
 - It oversees and coordinates the working of the three Services.
 - **As the head of DMA, CDS** is vested with the authority in prioritizing inter-service procurement decisions.
 - **Significance of CDS:**
 - **Synergy between Armed forces and Government:** CDS fosters better cooperation between the Ministry of Defense bureaucracy and the Armed services.

Note:

- **Jointness in operations:** Erstwhile Chiefs of Staff Committee-COSC has been made dysfunctional as CDS promotes more jointness in operations.
- **Concerns of Indian Air Force (IAF):**
 - While the army and navy are in favour of theatre commands, the IAF has concerns about the model **over the division of its air assets, the nomenclature of commands, the leadership of theatre commands and dilution of powers of chiefs.**
- **New Uniforms:**
 - All officers of the rank of Brigadier, Maj General, Lt General, and General will wear berets of the same colour, common badges of rank, a common belt buckle, and a common pattern of shoes, and will do away with the lanyards on the shoulders.
- Recently, **Inter-Services Organisations (Command, Control and Discipline) Bill, 2023**, was introduced

in Lok Sabha to empower designated military commanders **to take charge of soldiers and enforce discipline**, regardless of the service they belong to.

Inter-Services Organisations

(Command, Control and Discipline) Bill, 2023:

- The system is likely to include **five joint services commands - western, eastern, northern, maritime, and air defense.**
- The central government may constitute an Inter-services Organisation, which may include a Joint Services Command.
- It will empower the Commander-in-Chief/the Officer-in-command of Inter-Services Organisations to maintain discipline and ensure proper discharge of duties of all the personnel from the army, navy and IAF serving under his command.
- The Commander-in-Chief or the Officer-in-Command of an Inter-services Organisation shall be the head of such Inter-services Organisation.

Note:

Art and Culture

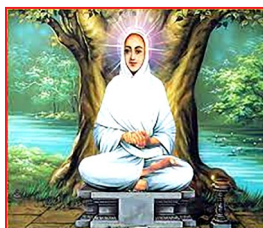
Highlights

- Shri Ramalinga Swamy
- Allah Baksh and Mewari Style Painting
- Toto Language

Shri Ramalinga Swamy

Why in News?

India celebrated the **200th birth anniversary of Shri Ramalinga Swamy**, also known as **Vallalar**, on 5th October, 2023.



What are the Key

Contributions of Shri Ramalinga Swamy?

➤ About:

- Shri Ramalinga Swamy was a prominent Tamil poet in the **19th century** and a member of the “gnana siddhars” lineage.
 - He was born in the village of **Marudhur** in **Tamil Nadu**.

➤ Vision of Social Reforms:

- Vallalar’s vision transcends **religious, caste, and creed barriers**, recognizing divinity in every atom of the universe.
 - Vallalar was strongly against the **caste system** and initiated the ‘**Samarasa Vedha Sanmarga Sangam**’ in **1865**, later renamed ‘**Samarasa Suddha Sanmarga Sathya Sangam**.’

- He established ‘**The Sathya Dharma Salai**,’ a free food facility in **Vadalur**, **Tamil Nadu** in **1867**, serving all people without caste distinctions.
- In **January, 1872**, Vallalar opened the ‘**Sathya Gnana Sabha**’ (**Hall of True Knowledge**) in **Vadalur**.

➤ Philosophical Beliefs and Teachings:

- One of Vallalar’s primary teachings was “**Service to Living Beings is the path of Liberation/Moksha.**”

- According to **Suddha Sanmarga**, the prime aspects of human life should be **love, connected with charity and divine practice**, leading to pure knowledge.
- Vallalar believed that the intelligence possessed by humans is **illusory (Maya)** intelligence and not accurate or final.
 - He emphasized “**Jeeva Karunyam**” (**Compassion for living beings**) as the path of final intelligence.
- He forbade killing animals for the sake of food and advocated **feeding the poor as the highest form of worship**.
- He also believed that God in the form of **Grace** is the **personification of Mercy and Knowledge**.
 - And, **Mercy is a path to God**.

Allah Baksh and Mewari Style Painting

Why in News?

Allah Baksh, a Mewari miniature painter late 17th century, portrayed the Interpretation of Mahabharata in his Painting and is known for his intricate and delightful representation.

Who was Allah Baksh?

➤ About:

- Allah Baksh was a **court painter employed by Maharaja Jai Singh of Udaipur** during the late 17th century.

➤ Paintings and Portrayal:

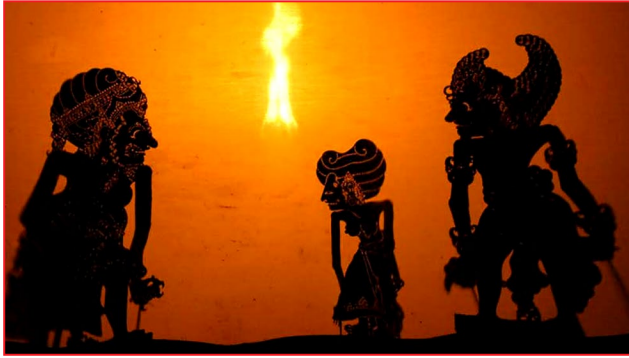
- Each painting by **Allah Baksh meticulously portrays** the details of characters’ costumes, the flora and fauna in the background, and the depiction of magical and mystical events.

Note:



drishti

- These miniatures encapsulate a delightful representation of the **Mahabharata**, showcasing a **dialogue between the verbal** and visual imaginations of the poet and the painter.



What is Mewari Style Miniature Painting?

➤ About:

- Mewār painting, one of the most important schools of Indian miniature painting of the **17th and 18th Centuries**. It is a school in the **Rājasthānī style** and was developed in the **Hindu principality of Mewār (in Rājasthān state)**.
- It is a highly **refined and intricate form** of painting characterized by its attention to detail, vibrant colors, and meticulous craftsmanship.
- The works of the school are characterized by simple bright color and direct emotional appeal.
 - The comparatively large number of paintings to which dates and places of origin can be ascribed **make possible a more comprehensive picture of the development of painting** in Mewār than in any other Rājasthānī school.
- **Famous Painter:** Sahibdin (painted the Ragamala in 1628).



What is Miniature Painting?

➤ About:

- Miniature paintings are **colorful handmade paintings very small in size**. One of the outstanding features of these paintings is the intricate brushwork which contributes to their unique identity.
- The colors used in the paintings are derived from various natural sources like **vegetables, indigo, precious stones, gold and silver**.
- They were often painted for either books or albums, on perishable material including paper, palm leaves and cloth.
 - The Palas of Bengal are **considered the pioneers of miniature painting in India**.
 - The tradition of miniature paintings was further taken forward by the artists of various Rajasthani schools of painting, including the Kishangarh, Bundi Jaipur, Mewar and Marwar.

➤ Schools of Miniature Painting:

- **Pala School:** The earliest Indian miniature paintings are related to the Pala School dating back to the 8th century A.D.
 - This school of painting emphasized on the symbolic use of colors and the **themes were often taken from the Buddhist tantric rituals**.
- **Jain School:** The Jain School of painting gained prominence in the 11th century A.D when religious texts like '**Kalpa Sutra**' and '**Kalkacharya Katha**' were portrayed in the form of miniature paintings.
- **Mughal School:** The amalgamation of Indian paintings and Persian miniature paintings gave rise to the Mughal School of miniature painting.
 - Interestingly, Persian miniature paintings were largely influenced by Chinese paintings.
- **Rajasthani School:** The decline of the Mughal miniature paintings resulted in the rise of the Rajasthani School. Rajasthani School of painting can be further divided into **various schools** depending on the region they were created in.
 - The Mewar School, Marwar School, Hadoti School, Dhundar School, Kangra and Kullu Schools of art are all part of Rajasthani School of painting.

Note:



drishti

- **Pahari School:** Pahari School of miniature painting emerged in the 17th century A.D. These paintings originated in the kingdoms of North India, in the Himalayan region.
- **Deccan School:** The Deccan School of miniature painting flourished in places like Ahmednagar, Golconda, Tanjore, Hyderabad and Bijapur from 16th to 19th century A.D.
 - The Deccan School of miniature painting was largely influenced by the rich traditions of the Deccan and the religious beliefs of Turkey, Persia and Iran.

Toto Language

Why in News?

The **Toto language**, spoken by only 1,600 people in West Bengal, is on the brink of extinction.

- However, a **trilingual dictionary (Toto-Bengali-English)** called "**Toto Shabda Sangraha**" is set to be released in Kolkata on 7th October 2023, to help preserve the toto language.

What is the Toto Language?

- The Toto language is a **Sino-Tibetan language** spoken by the **Toto tribal people** in parts of West Bengal bordering Bhutan.

- **The United Nations Educational, Scientific and Cultural Organization (UNESCO)** lists it as a **critically endangered** language.

- The Toto language is **primarily spoken orally** and even though prominent community member **Padma Shri-decorated Dhaniram Toto developed a script as recently as in 2015**, most people either **write it in Bengali script or write in Bengali language**.

Toto People

- The Toto is a primitive and isolated tribal group residing only in a small enclave called Totopara in the Jalpaiguri of West Bengal, India.
- The total population of Totos is **less than 2000 according to the 2001 census**, all living in Totopara.
- The Totos are considered **Mongoloid people**.
- They are generally **endogamous and marry within their own tribe**.
- The Toto family is **patrilocal**(social system in which a **married couple resides with the husband's parents**) in nature and dominated by **nuclear type**. However, joint families are not rare. **Monogamy** is a common form of marriage among the Toto but **polygamy is not prohibited**. There is **no custom of divorce among the Totos**.



Note:

History

Highlights

- Chhatrapati Shivaji Maharaj's Wagh Nakh

- Mahatma Gandhi's 154th Birth Anniversary

Chhatrapati Shivaji Maharaj's Wagh Nakh

Why in News?

Maharashtra's Cultural Affairs Ministry has signed a memorandum of understanding (MoU) with the Victoria and Albert Museum in London to bring back **Chhatrapati Shivaji Maharaj's** legendary "**Wagh Nakh**" a formidable medieval weapon to the state.

- The MoU states that the antique weapon will be handed over to the Government of Maharashtra **on a loan basis for a period of three years**, during which it will be displayed in museums across the state.



What is the 'Wagh Nakh'?

- The 'wagh nakh,' literally translating to '**tiger claws**,' is a unique medieval dagger used across the **Indian subcontinent**.
 - This fearsome weapon featured **four or five curved blades** affixed to a glove or a bar, designed for **personal defence or stealth attacks**.
 - Its sharp blades were capable of slicing through skin and flesh with ease.
- Chhatrapati Shivaji's Defense with the 'Wagh Nakh':**
 - Chhatrapati Shivaji faced Afzal Khan, a Bijapur general assigned to stop Shivaji's strong campaigns in the Konkan. Khan suggested a peaceful meeting, but Shivaji, anticipating danger, came prepared.
 - He concealed a 'wagh nakh' and wore chainmail (armour made from small metal rings) under his attire. When Khan attacked, Shivaji's 'wagh nakh' struck, resulting in Khan's death, ultimately securing Shivaji's victory.

What are the Key Points

Related to Chhatrapati Shivaji Maharaj?

➤ Birth:

- Born on 19th February 1630, at Shivneri Fort in Pune District, Maharashtra, he was the son of **Shahaji Bhonsle**, a Maratha general with jagirs in Pune and Supe under the Bijapur Sultanate, and **Jijabai**, a deeply religious woman who greatly influenced him.

➤ Important Battles:

Battle of Pratapgad, 1659	➤ Fought at the fort of Pratapgad near the town of Satara, Maharashtra, between the forces of the Maratha king Chhatrapati Shivaji Maharaj and the Adilshahi general Afzal Khan.
Battle of Pavan Khind, 1660	➤ Fought at a mountain pass in the vicinity of fort Vishalgad, near the city of Kolhapur, Maharashtra, between the Maratha Sardar Baji Prabhu Deshpande and Siddi Masud of Adilshahi.
Sacking of Surat, 1664	➤ Fought near the city of Surat, Gujarat, between Chhatrapati Shivaji Maharaj and Inayat Khan, a Mughal captain.
Battle of Purandar, 1665	➤ Fought between the Mughal Empire and the Maratha Empire.
Battle of Sinhagad, 1670	➤ Fought on the fort of Sinhagad near the city of Pune, Maharashtra between Tanaji Malusare, a commander of Maratha ruler Shivaji Maharaj and Udaybhan Rathod, fortkeeper under Jai Singh I who was a Mughal Army Chief.
Battle of Kalyan, 1682-83	➤ Bahadur Khan of the Mughal Empire defeated the Maratha army and took over Kalyan.

Note:

Battle of Sangamner, 1679

- Fought between the Mughal Empire and Maratha Empire. This was the last battle in which the Maratha King Shivaji fought.

➤ **Titles:**

- He took on the titles of **Chhatrapati, Shakakarta, Kshatriya Kulavantas and Haindava Dharmodhhaarak.**

➤ **Administration under Shivaji:**

○ **Central Administration:**

- He established a centralised administration with a **council of eight ministers (Ashtapradhan)** who were directly responsible to him and advised him on various matters of the state.
- The **Peshwa**, also known as the **Mukhya Pradhan**, originally headed the advisory council of Raja Shivaji.

○ **Provincial administration:**

- Shivaji divided his kingdom into **four provinces**. Each province was further divided into districts and villages. The village was the basic unit of administration and was governed by a Deshpande or Patel with the help of a village panchayat.
- Like the centre, there was a committee or council of eight ministers with **Sar-i- 'Karkun'** or the '**prantpati**' (Head of the province).

➤ **Revenue Administration:**

- Shivaji abolished the **Jagirdari System** and replaced it with the **Ryotwari System**, and made changes in the position of hereditary revenue officials which were popularly known as **Deshmukhs, Deshpande, Patils, and Kulkarnis**.
- Shivaji strictly supervised the Mirasdars who had hereditary rights in land.
- The revenue system was patterned on the **Kathi system of Malik Amber** in which every piece of land was measured by **Rod or Kathi**.
- **Chauth and Sardeshmukhi** were other sources of income.
 - Chauth amounted to 1/4th of the standard that was paid to Marathas as a safeguard against Shivaji's forces raiding non-Maratha territories.
 - Sardeshmukhi was an additional levy of 10% demanded from areas outside of the kingdom.

➤ **Military Administration:**

- Shivaji established an efficient army, **paying ordinary soldiers in cash** and high-ranking officials through jagir grants (**Saranjam**).
 - His military included **infantry (Mavali foot soldiers), cavalry (horse riders and equipment handlers)**, and a navy.
- Key roles included the **Sar-i-Naubat (Senapati)** in charge of the army, **Qiladars** overseeing forts, **Nayaks** leading infantry units, **Havaldars** heading groups of five Nayaks, and **Jumladars** overseeing five Nayaks.

➤ **Death:**

- Shivaji passed away in **Raigad in 1680** and was cremated at the **Raigad Fort**. Shivaji Maharaj Jayanti is celebrated each year on **19th February** to remember and praise his courage, warfare tactics and administrative skills.

Mahatma Gandhi's 154th Birth Anniversary

Why in News?

On 2nd October, 2023, **Mahatma Gandhi's** 154th birth anniversary was celebrated across the nation to commemorate his principles and ideals that inspire the nation until the present times, owing to the indispensable role played by him during the freedom struggle.

- His contributions to the freedom struggle earned him the epithet of "**Father of Nation**" which led to his portrait being featured on Indian legal banknotes.
- Being a multi-faceted personality, Mahatma Gandhi had **deep interest in music**, and he always **promoted safeguarding the environment**.

How did Mahatma Gandhi Become a Permanent Feature on Legal Banknotes of India?

➤ **The origins of Gandhi's image on Indian currency:**

- The portrait of Gandhi visible on banknotes is a cut-out of a photograph taken in 1946, where he is standing with **British politician Lord Frederick William Pethick-Lawrence**.
- The photograph was selected as it had the most suitable expression of Gandhi smiling — the portrait is a mirror image of the cut-out.

Note:



drishti

Mohandas Karamchand Gandhi



“The weak can never forgive. Forgiveness is the attribute of the strong.”

Brief Description

Birth: 2nd October 1869, Porbandar (Gujarat).

2nd October is observed as **International Day of Non-Violence**.

Profile: Lawyer, Politician, Social activist, Writer and led Nationalist Movement.

Father of the Nation (first called by Netaji Subhash Chandra Bose).

Ideology: Believed in the ideas of non-violence, Truth, Honesty, Care for Mother Nature, Compassion, Welfare of Down-trodden etc.

Political Mentor: Gopal Krishna Gokhale

Death: Shot dead by Nathuram Godse (30th January, 1948).

30th January is observed as **Martyrs' Day**

Nominated for the Nobel Peace Prize five times.



Gandhi in South Africa (1893-1915)

Used satyagraha against racist regime (Native Africans and Indians were discriminated).

Pravasi Bharatiya Divas (PBD) is celebrated every year on 9th January, to commemorate his return from South Africa.

Contribution in India's Freedom Struggle

Small-scale movements like Champaran Satyagraha (1917)—First Civil Disobedience, Ahmedabad Mill Strike (1918)—First Hunger Strike, and Kheda Satyagraha (1918)—First Non-Cooperation.

Nationwide Mass Movements: Against Rowlatt Act (1919), Non-Cooperation Movement (1920-22), Civil Disobedience Movement (1930-34), Quit India Movement (1942).

Gandhi-Irwin Pact (1931): Between Gandhi and Lord Irwin that marked the end of a period of civil disobedience.

Poona Pact (1932): Between Gandhi and **B.R. Ambedkar**; this abandoned the idea of separate electorates for the depressed classes (Communal Award).



Books Written

Hind Swaraj, My Experiments with Truth (Autobiography)

Weeklies

Harijan, Navjivan, Young India, Indian Opinion.

Gandhi Peace Prize

is given by India for social, economic, and political transformation through Gandhian methods.

“Happiness is when what you think, what you say, and what you do are in harmony.”

“You must not lose faith in humanity. Humanity is an ocean; if a few drops of the ocean are dirty, the ocean does not become dirty”

- According to **Section 25 of the RBI Act, 1934**, “the design, form and material of banknotes” shall be such as may be approved by the central government after consideration of the recommendations made by the central board.

➤ **Gandhi's first appearance on INR notes:**

- Gandhi first featured on Indian currency in **1969**, when a special series was issued to commemorate his **100th birth anniversary**.
- Then, in October **1987**, a series of Rs **500 currency notes**, featuring Gandhi, was launched.

➤ **Gandhiji, a permanent feature on banknotes:**

Note:



drishti

- Gandhi was chosen because of his national appeal, **and in 1996**, a new 'Mahatma Gandhi Series' was launched by the RBI to replace the former Ashoka Pillar bank notes.
- Several security features were also introduced, including a windowed security thread, latent image and intaglio features for the visually impaired.

What are Mahatma Gandhi's Lessons on Sustainability?

- **Simplicity and Minimalism:**
 - Gandhi advocated for a simple and minimalist lifestyle. He believed that individuals should live with the bare minimum and avoid excessive consumption.
 - This idea of simple living, or "**Sarvodaya**," promotes the conservation of resources and a reduced ecological footprint.
- **Self-Sufficiency:**
 - Gandhi emphasized the importance of self-sufficiency at the community level. He promoted the idea of **villages being self-reliant** in terms of food, clothing, and other basic needs.
 - This approach reduces dependence on external resources and **minimizes environmental impacts** associated with long-distance transportation and trade.
- **Nonviolence (Ahimsa):**
 - Gandhi's principle of nonviolence extends beyond human relations to encompass all living beings and the environment. He believed in the **ethical treatment of animals and was a vegetarian himself**.
 - This reflects his concern for the well-being of all creatures and the importance of coexisting harmoniously with nature.
- **Sustainable Agriculture:**
 - Gandhi supported sustainable and **organic farming practices**. He advocated for the use of natural fertilizers, crop rotation, and traditional farming methods that preserve soil fertility and reduce the need for chemical inputs.
- **Conservation of Resources:**
 - Gandhi emphasized the **responsible use and conservation of natural resources**, such as water and forests.

- He believed in protecting and regenerating the environment to ensure that future generations have access to these resources.

➤ **Localism and Decentralization:**

- Gandhi was a proponent of **decentralization of power and resources**. He believed in devolving authority to local communities, which can be more attuned to their own environmental and sustainability needs.

➤ **Swadeshi:**

- Gandhi promoted the **Swadeshi movement**, which encouraged the use of locally produced goods and materials.
- This concept aimed to reduce the ecological impact of long-distance trade and promote local economies.

➤ **Respect for Nature:**

- Gandhi believed that humans should have a **deep respect and reverence for nature**.
- He saw nature as an essential part of human life and called for responsible stewardship of the environment.

➤ **Vasudhaiva Kutumbakam:**

- His belief in **Vasudev Kutumbakam** (the entire world is one family) encourages us to believe that we all are citizens of one world, and that we must remain conscious of global issues.

What is the Relationship of Mahatma Gandhi's Idea of Politics with Music?

➤ **Bhajans and Religious Music:**

- Gandhi had a strong spiritual side, and he often used devotional music, such as **bhajans (Hindu religious songs)**, as a means of connecting with his inner self and finding solace.
- He believed that **singing hymns and religious songs helped purify the mind** and strengthen one's connection with the divine.

➤ **Inspirational Songs:**

- Gandhi encouraged the use of inspirational songs and patriotic songs to unite people in the struggle for independence.
- Songs like "**Raghupati Raghava Raja Ram**" and "**Vaishnav Jan To**" were among his favorites and were frequently sung during his prayer meetings and public gatherings.

Note:

➤ **Fasting and Silence:**

- Gandhi sometimes observed **periods of fasting and silence** as a form of protest or self-purification.
- During these times, he often communicated with others **through written messages and used music to convey his thoughts and feelings.**

➤ **Community Bonding:**

- Music played a **crucial role in bringing communities together** during Gandhi's nonviolent movements.
- Chants, songs, and music **created a sense of unity and solidarity** among the participants in various campaigns, such as the **Salt March.**

➤ **Promotion of Folk Music:**

- Gandhi was a proponent of traditional Indian culture and believed in the preservation of folk music and arts.

- He encouraged the **use of local languages and music to connect with the masses**, as he believed that they were more relatable and accessible.

➤ **Role in Nonviolent Resistance:**

- Music was an integral part of the **nonviolent resistance movements** led by Gandhi. It served as a means of inspiring and mobilizing people, **fostering a sense of collective identity, and uplifting spirits** during challenging times.

➤ **Advocacy for Simplicity:**

- Gandhi's philosophy of simplicity and minimalism extended to music. He preferred **simple and melodious tunes that could be easily understood and appreciated by the common people.**



Note:

Geography

Highlights

- Land Use in India
- Surge in Human Settlements in Flood-Prone Areas
- More Frequent Cyclones in Eastern Arabian Sea
- Glacial Lake Outburst Flood in Sikkim

Land Use in India

LAND USE IN INDIA

Land Use

The way land is utilised for various purposes (residential, commercial and agricultural).

Data on land use is categorised in a nine-fold classification on an yearly basis.

Land-Use Records

- Maintained by:**
 - Land Revenue Department
- Measured by:**
 - Survey of India
- Collection:**
 - Total geographical area** - 329 million hectares (reporting area)
 - Statistics available for** - 305 million hectares (non-reporting area)

7% of the total area is not covered or classifiable under the nine-fold classification

Nine-Fold Classification

- Forests:** All lands, whether state-owned or private, wooded or potential forest land, as per forest-related laws (23.44%)
- Non-agricultural Uses:** Land occupied by buildings, roads, railways, or underwater (9.03%)
- Barren and Unculturable Land:** Includes mountains, deserts, etc. (5.43%)
- Permanent Pastures and Grazing Lands:** All grazing lands, whether pastures or not (3.36%)
- Culturable Waste Land:** Land available for cultivation but not used for +5 years (3.87%)
- Fallow Lands (excluding Current):** Temporarily unused for 1-5 years (3.52%)
- Current Fallows:** Cropped areas kept fallow in the current year (4.23%)
- Misc. (Trees, Crops, etc.):** Cultivable land not in 'Net Area Sown' but used agriculturally (0.98%)
- Net Area Sown:** Total area with crops and orchards (46.10%)

Key Terms

- Geographical Area:** Data from the Surveyor General of India on state/union territory size
- Reporting Area:** Area with land use data available
- Gross Cropped Area:** Total area sown once or more in a year
- Area Sown more than once:** Land with multiple crop plantings in a year
- Irrigated Area:** Land irrigated by canals, tanks, wells, etc
- Total/Gross Irrigated Area:** All land is irrigated one or more times
- Total/Gross Un-Irrigated Area:** Area without irrigation
- Cropping Intensity:** Total Cropped Area divided by Net Area Sown
- Agricultural Land:** Includes net area sown, fallows, wasteland, and more
- Total Un-Cultivable Area:** Area minus cultivable land
- Total Cultivated Area:** Net area is sown and current fallows
- Total Un-Cultivated Area:** Area minus cultivated land

Land-use Pattern in India from 2005-06 to 2020-21

Source: Department of Agriculture and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

Causes for Land Use Change

- Increasing population and developmental activities
- Agricultural expansion
- Climate change
- Mining
- Land degradation

Drishti IAS

Note:

Surge in Human Settlements in Flood-Prone Areas

Why in News?

According to a recent study conducted by the **World Bank**, **human settlements** in some of the **world's riskiest flood zones** have increased by a staggering **122% since 1985**, contributing to the vulnerability of millions to water disasters induced by **climate change**. And, this growth is **predominantly observed in middle- and low-income countries**.

- On the other hand, the most secure regions experienced an **80% increase in growth in human settlements**.

What are the Major Takeaways from the Study?

- **Global Landscape of Settlement Expansion:**
 - Most countries, **especially in East Asia**, saw more settlements in **regular flood zones and ultra-high flood zones** than in dry areas.
 - **Libya**, which suffered from devastating flooding in **September 2023**, had an 83% increase in settlement extent in the worst flood zones.
 - **Pakistan**, experiencing **catastrophic flooding both in 2022 and 2023**, witnessed an 89% increase in settlements in prone areas.
- **Notable Exceptions:**
 - **Dry settlements in the United States increased by 76%**, while the highest flood settlements rose by only 46%.
 - Other countries with more dry settlements than ultra-wet areas include **India, France, Sweden, Austria, Finland, Japan and Canada**.

What are the Possible Factors Behind Increasing Human Settlements in Flood Zones?

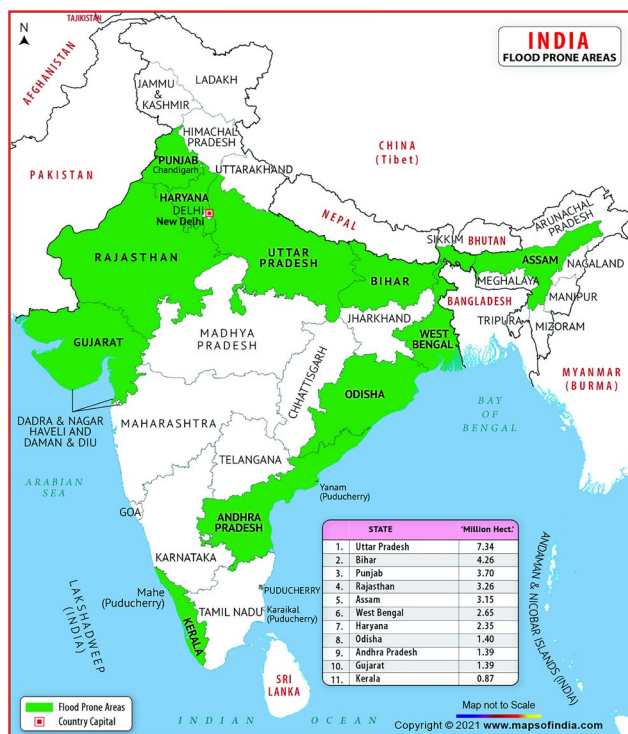
- **Rural to Urban Migration:** As countries experience economic growth, **urbanization near waterways becomes prevalent**. Settlements often expand into flood-prone areas as cities grow.
 - **For Example: Dar es Salaam, Tanzania**, exemplifies this issue, **growing from a fishing village to over seven million people**.
- **Economic Factor:** Low-income populations often **cannot afford to live in safer, less flood-prone areas**. They

might be forced to live in flood-prone zones because of **housing affordability constraints**.

- **Lack of Regulatory Enforcement:** In some countries, **land-use planning and zoning** regulations might not be effectively enforced. This can result in **settlements proliferating in flood-prone areas without adequate safeguards**.
- **Cultural and Historical Ties:** Some communities have **deep cultural or historical connections to flood-prone regions**, and this can influence their decisions to remain or settle in these areas despite the risks.
- **Tourism and Recreation:** Coastal and riverfront areas, despite their vulnerability to flooding, continue to draw tourists and recreation enthusiasts because of their inherent appeal.
 - The **demand for resorts, hotels, and vacation homes** can lead to settlement in these areas, even if it's only seasonal.

Note: Settlement expansion into flood zones **does not negate the significance of climate change**. The two issues are **intertwined**, compounding risks and vulnerabilities. People might **prioritize immediate needs for shelter and livelihoods over long-term climate risks**.

- This can lead to decisions that are more focused on short-term survival.



Note:

More Frequent Cyclones in Eastern Arabian Sea

Why in News?

Recently, a study has been published in the Nature Journal, which highlights the concerns related to **Climate Change** causing frequent **Tropical Cyclones (TC)** in the **Eastern Arabian Sea**.

- The study is part of the “**Forecasting with Fisher’s**” project, by the **Advanced Centre for Atmospheric Radar Research (ACARR)** at Cochin University of Science and Technology (CUSAT).

What are the Key

Findings of the Study?

- **Increasing Frequency and Severity of Cyclones:**
 - Changes in ocean and atmosphere **warming patterns are leading to more frequent and severe tropical cyclones** in the Eastern Arabian Sea, adjacent to India’s west coast.
 - Typically, tropical cyclones in the Arabian Sea occur **at the start of the southwestern monsoon between March and June**, as well as after the season, between October and December.
 - The Arabian Sea accounts for about 2% of the annual global mean of tropical cyclones but **poses a considerable threat due to its densely populated coastlines**.
- **Impact of Indian Ocean Dipole (IOD):**
 - The positive phase of **IOD**, where one part of the ocean gets warmer than the other, leads to **warmer sea surface temperatures** and increased precipitation in the western Indian Ocean region.
 - **IOD, sometimes referred to as the Indian Nino**, is similar to the **El Nino** phenomenon, occurring in the relatively smaller area of the **Indian Ocean** between the Indonesian and Malaysian coastline in the east and the African coastline near Somalia in the west.
- **Anthropogenic Influence:**
 - The recent increase in the frequency of extremely severe cyclonic storms over the Arabian Sea

during the post-monsoon season is **attributed to anthropogenic (human-caused) influence** rather than natural variability.

- Human-induced climate change is contributing to the **intensification and higher frequency of cyclones** in the Arabian Sea.
- **Impact on Western Indian Coastline:**
 - The intensification and increase in cyclone frequency pose a significant threat to the **densely populated coastal regions** along the western coast of **India, from Gujarat to Thiruvananthapuram**, facing higher risks, including strong winds, storm surges, heavy rainfall, and other associated hazards.
- **Concerns for Coastal Communities:**
 - The changing cyclone patterns are expected to **significantly affect** the lives and livelihoods of **indigenous coastal communities** and artisanal fishers, necessitating a need for further studies and adaptation strategies.
- **Recommendations:**
 - The study calls for **changes in development strategies** to account for increased cyclone risks and emphasizes the need for updated policies and technologies related to storm warnings and localized weather services.

Note:

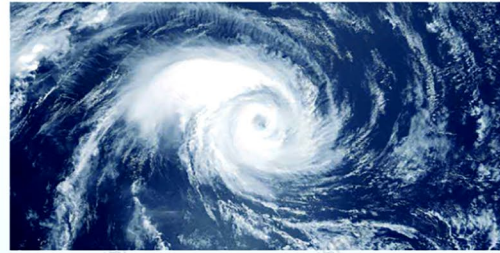
- Cyclones in the Bay of Bengal (BOB) are relatively **more frequent and intense than those of the Arabian Sea**.
 - The Bay of Bengal typically sees multiple cyclonic events during the tropical cyclone season, which is primarily from April to December.
- The BOB usually has **higher sea surface temperatures**, especially during the pre-monsoon and post-monsoon seasons, providing the **necessary energy and moisture for cyclone formation** and intensification.
- The convergence of winds in the BOB, combined with the **Coriolis Force** (resulting from the Earth’s rotation), creates an **environment suitable for cyclone genesis**. These converging winds **form areas of low pressure**, which can develop into tropical disturbances and cyclones.

Note:

What are Cyclones?

CYCLONE

Cyclones are rapid **inward** air circulation around a **low-pressure** area.

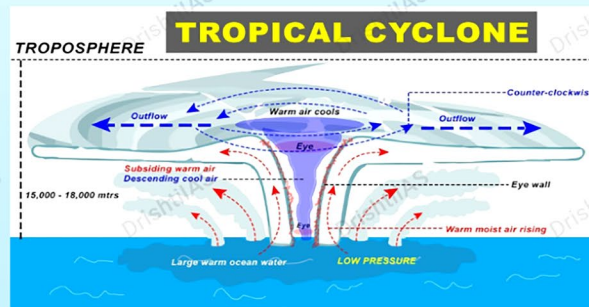


Cyclone v/s Anticyclone

Pressure System	Pressure Condition at the Center	Pattern of Wind Direction	
		Northern Hemisphere	Southern Hemisphere
Cyclone	Low	Anticlockwise	Clockwise
Anticyclone	High	Clockwise	Anticlockwise

Classification

- **Tropical Cyclones;** originate between the **Tropics of Capricorn and Cancer**
- **Extra Tropical/ Temperate Cyclones;** originate in the **Polar Regions**



Conditions for Formation

- Large sea surface with temperature $>27^{\circ}\text{C}$.
- Presence of the **Coriolis force**
- Small **variations in the vertical wind speed**
- **A pre-existing weak low- pressure area**
- **Upper divergence** above the sea level system

Different Names for Tropical Cyclones

- **Typhoons** - Southeast Asia and China
- **Hurricanes** - North Atlantic and eastern Pacific
- **Tornados** - West Africa and southern USA
- **Willy-willies** - Northwest Australia
- **Tropical Cyclones** - Southwest Pacific and Indian Ocean

Nomenclature

- Nodal Authority - **World Meteorological Organization (WMO)**
- Indian Ocean Region - **Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand** contribute to naming cyclones that occur in this region.

Cyclones in India

- **Bi-annual Cyclone Season** - March to May and October to December
- Recent Cyclones - **Tauktae, Vayu, Nisarga and Mekanu** (in Arabian Sea) and **Asani, Amphan, Fani, Nivar, Bulbul, Titli, Yaas and Sitrang** (in Bay of Bengal)

Note:



drishti


Glacial Lake Outburst Flood in Sikkim

Why in News?

Sikkim recently experienced a **Glacial Lake Outburst Flood (GLOF)**. The **South Lhonak Lake**, a glacial lake located at an altitude of 17,000 feet in the state's northwest, experienced a **rupture as a result of continuous rainfall**.

- Consequently, water was discharged into the downstream regions, causing flooding in the **Teesta River** and impacting four districts of Sikkim: Mangan, Gangtok, Pakyong, and Namchi, as reported by the Sikkim State Disaster Management Authority (SSDMA).
- This flooding also caused the **Chungthang Hydro-Dam in Sikkim (on Teesta river) to breach**, worsening the overall situation.

Waiting to Happen! What was the Trigger?



Cloudburst over South Lhonak Lake

Water released from Chungthang Dam

Army personnel missing from Bardang

Area enlarged

CHINA

NEPAL

Sikkim

Lachen

Teesta River

Gangtok

INDIA

BHUTAN

West Bengal

KBK

As South Lhonak glacier continued to retreat amid global warming by another 400 m between 2008 and 2019, lakes only grew

Glacial lake outburst flood (Glof) like disaster was waiting to happen

Trigger could be anything from cloudburst to landslide, avalanche or earthquake

Mitigation Steps

First field expedition of glacial lake conducted in August 2014, followed by another in 2016 which resulted in a project to start siphoning off lake water

Three pipelines were installed to siphon off 150 mlitres of water per second at that time

Central Water Commission initiated an advisory to evaluate the South Lhonak glacier

Himalayan Problem

Problem of receding glaciers and the spectre of Glof devastation faces the entire Himalayan region as global warming provides new triggers in the young mountain ranges

Add to that the build-up of infrastructure, habitation, road networks and hydropower plants

A 2021 study warned that 'both the existing and planned hydropower plants are exposed to potential outburst floods from glacial lakes'

What is Glacial Lake Outburst Flood?

➤ About:

- A **GLOF (Glacial Lake Outburst Flood)** is a sudden and potentially catastrophic flood that occurs when water stored behind a glacier or a **moraine (a natural accumulation of ice, sand, pebbles, and debris)** is released rapidly.
 - These floods happen when glacial lakes formed by melting ice accumulate water behind weak moraine dams.
 - Unlike sturdy earthen dams, these moraine dams can fail abruptly, releasing large volumes of water in minutes to days, leading to **devastating downstream flooding**.
- The **Himalayan terrain**, with its **steep mountains**, is particularly vulnerable to GLOFs.

- **Climate change**, accompanied by rising global temperatures, has expedited the process of glacier melting in the **Sikkim Himalayas**.

- The region now boasts more than 300 glacial lakes, with **ten identified as susceptible to outburst floods**.
 - GLOF can be triggered by several reasons, including **earthquakes, extremely heavy rains and ice avalanches**.
- **Impact:**
 - GLOFs can result in catastrophic **downstream flooding**. They have the potential to release millions of cubic meters of water in a short period of time.
 - Peak flows during GLOFs have been recorded as high as **15,000 cubic meters per second (as per National Disaster Management Authority)**.

Note:

How Susceptible is South Lhonak Lake to GLOFs?

- The **South Lhonak lake** in northern Sikkim is situated about 5,200 meters above sea level.
 - Scientists have previously warned that the **lake had been expanding over years**, possibly from the melting of the ice at its head.
 - Notably, seismic activities, including a **2011 magnitude 6.9 earthquake**, escalated the GLOF risk in the area.
- In 2016, the **Sikkim State Disaster Management Authority** and other stakeholders launched a critical plan to drain excess water from South Lhonak Lake.
 - Visionary innovator **Sonam Wangchuk** led the effort, employing **High Density Polyethylene (HDPE) pipes** to siphon off water from the lake.
 - This initiative successfully reduced the lake's water volume by approximately 50%, mitigating the risk to some extent.
- However, the recent tragedy is believed to be caused by an **avalanche** originating from the ice-capped feature surrounding the lake.

What are the Other Recent GLOF Incidents in India?

- In **June 2013**, Uttarakhand had received an **unusual amount of rainfall leading to the melting of the Chorabari glacier** and the eruption of the **Mandakini river**.
- In **August 2014**, a glacial lake outburst flood hit the village of **Gya in Ladakh**
- In **February 2021**, **Chamoli** district in Uttarakhand witnessed flash floods which are suspected to have been caused by GLOFs.

What Actions be Taken to Reduce the Risk of GLOFs?

- **Glacial Lake Monitoring:** Establishing a comprehensive monitoring system to track the growth and stability of glacial lakes in vulnerable regions.
 - Satellite imagery, remote sensing technology, and **field surveys through drones** can be used to **regularly assess changes in glacial lakes and their associated moraine dams**.
- **Early Warning Systems:** and early warning systems that can provide timely alerts to downstream communities in the **event of a GLOF**.
 - Also, there is a need to complement it with **flood protection measures**, such as **constructing protective barriers, levees, or diversion channels** to redirect floodwaters away from populated areas.
- **Public Awareness and Education:** There is a need to **raise public awareness about the risks of GLOFs and educate communities** living downstream about evacuation procedures and safety measures, as per NDMA's guidelines related to GLOF.
 - Conduct drills and training programs to ensure that residents know how to respond in case of a GLOF.
- **International Cooperation:** India can collaborate with **neighboring countries in the Himalayan region**, as GLOFs can have transboundary impacts.
 - Sharing information and best practices for GLOF risk reduction and management with neighboring countries can help to mitigate the risk.



Note:

Miscellaneous

Highlights

- Nobel Prize 2023
- Setu Bandhan Scheme: CRIF
- Indian Pharmacopoeia Commission Joins PDG
- Asian Games 2023
- Asia-Pacific Institute for Broadcasting Development
- Arunachal Pradesh Gets GI Tags for Three Products
- Nobel Peace Prize 2023
- Doping Practices In India
- Nobel Prize in Literature 2023
- Nagorno-Karabakh Conflict
- Project Udbhav
- MS Swaminathan
- Airport Codes

Nobel Prize 2023

NOBEL PRIZE 2023

The Nobel Prizes are seen as the most esteemed recognition bestowed upon intellectual accomplishments globally.



NOBEL PRIZE IN PHYSICS

Winners:

- ▶ Pierre Agostini (Tunisia)
- ▶ Ferenc Krausz (Hungary)
- ▶ Anne L'Huillier (France)

Work:

- ▶ Experimental methods that generate **attosecond pulses of light** for the study of **electron dynamics** in matter

NOBEL PRIZE IN CHEMISTRY

Winners:

- ▶ Moungi G. Bawendi (France)
- ▶ Louis E. Brus (US)
- ▶ Alexei I. Ekimov (Russia)

Work:

- ▶ Discovery and synthesis of **quantum dots**

NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

Winners:

- ▶ Katalin Karikó (Hungary)
- ▶ Drew Weissman (US)

Work:

- ▶ Discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19

NOBEL PRIZE IN LITERATURE

Winner:

- ▶ Jon Olav Fosse (Norway)

Work:

- ▶ **Innovative plays and prose** which give voice to the unsayable
- ▶ Language: **Norwegian Nynorsk**

NOBEL PEACE PRIZE

Winner:

- ▶ Narges Mohammadi (Iran)

Work:

- ▶ **Fight against the oppression of women in Iran** and fight to promote human rights and freedom for all

NOBEL PRIZE IN ECONOMIC SCIENCES

Winner:

- ▶ Claudia Goldin (US)

Work:

- ▶ For having advanced our understanding of **women's labour market outcomes**



Note:

Setu Bandhan Scheme: CRIF

Why in News?

Recently, the Ministry of Road Transport & Highways has disclosed the approval of seven crucial bridge projects in **Arunachal Pradesh under the Setu Bandhan Scheme under Central Road and Infrastructure Fund (CRIF)**.

- These projects, with a combined cost of Rs 118.50 Crores, are slated for implementation during the **fiscal year 2023-24**.

What is the Central Road Infrastructure Fund (CRIF)?

- **About:**
 - The Central Road and Infrastructure Fund (**earlier known as Central Road Fund**) was established in 2000 under **Central Road Fund Act, 2000**.
 - The fund comprises **a cess imposed along with excise duty** on petrol and diesel.
 - The administrative control of the CRIF falls under the Ministry of Finance.
 - Earlier it was under the domain of the Ministry of Road Transport and Highways.
- **Central Road Fund Act (Amendment), 2018:**
 - The amendment renamed the **Central Road Fund as Central Road and Infrastructure Fund (CRIF)**.
 - It allowed using the **proceeds of the road cess under CRIF** to finance other infrastructure projects including waterways, some portion of the railway infrastructure and even social infrastructure including educational institutions, medical colleges etc.
- **Setu Bandhan Scheme:**
 - The "Setu Bandhan Scheme" is a program initiated by the Ministry of Road Transport & Highways, aimed at facilitating the construction of **Rail Over Bridges (ROBs), Rail Under Bridges (RUBs), and Bridges on State Roads**.
 - This program is designed to enhance **road safety by replacing existing level crossings with bridges**, ultimately reducing accidents at these locations.

Indian Pharmacopoeia Commission Joins PDG

Why in News?

The **Indian Pharmacopoeia Commission (IPC)** has joined the **Pharmacopoeial Discussion Group (PDG)**, a pivotal move to **enhance global pharmaceutical standards**, regulatory compliance, and international recognition of Indian pharmaceutical products.

- IPC was the only Pharmacopoeia body in the world to be selected for the pilot phase initiated in September 2022. After a year-long pilot phase, **IPC's inclusion as a permanent PDG member was confirmed in September 2023**.

What is the Pharmacopoeial Discussion Group (PDG)?

- The PDG is an **international forum** that aims to **harmonize global pharmacopoeial standards** to reduce the burden on manufacturers and ensure consistent quality.
- The PDG was established in 1989 by the **European Pharmacopoeia (Ph. Eur.)**, the **Japanese Pharmacopoeia (JP)**, and the **US Pharmacopeia (USP)**.
 - In 2001, the **World Health Organization (WHO)** joined as an observer.

How Will IPC's

Membership in the PDG Benefit India?

- IPC's standards will **gain international recognition**, potentially boosting the **acceptance of Indian pharmaceutical products globally**. It will position IPC as a forward-looking body that sets drug quality standards in line with global benchmarks.
- IPC can **collaborate and harmonize standards** with other major regulatory bodies, ensuring global pharmaceutical quality and safety.
- IPC can align its processes with global standards, making it **easier for Indian pharmaceutical companies to comply with international regulations**.
- Membership in **PDG will facilitate increased exports of Indian pharmaceutical products** to member countries, reducing trade barriers.

Note:



drishti

Indian Pharmacopoeia Commission (IPC):

- IPC is an Autonomous Institution of the **Ministry of Health and Family Welfare**.
- IPC was created to **set standards for drugs in India**. Its basic function is to regularly update the standards of drugs commonly required for the treatment of diseases prevailing in this region.
- It publishes official documents for improving the **Quality of Medicines** by way of adding new and updating existing monographs in the form of **Indian Pharmacopoeia (IP)**.
 - It further promotes the rational use of generic medicines by publishing the National Formulary of India.
- IP prescribes **standards for the identity, purity and strength of drugs** essentially required from the health care perspective of human beings and animals.
- IPC also **provides IP Reference Substances (IPRS)** which act as a **fingerprint** for identification of an article under test and its purity as prescribed in IP.

Asian Games 2023

Why in News?

Recently, the **19th Asian Games (of 2022, held in 2023)** came to a close at the **Hangzhou Olympic Sports Centre Stadium (also called Big Lotus)** in China. Hockey player PR Sreejesh was India's flagbearer at the parade of athletes.

- The **20th Asian Games** will be held in Japan in **2027**.

What are the Key

Highlights of Asian Games 2023 ?

- **India's Milestones:**
 - **India's Medals Tally:**
 - With an unprecedented haul of **107 medals (28 gold, 38 silvers and 41 bronze)**, India set a new benchmark for themselves at the Asian Games 2023 in **Hangzhou, the People's Republic of China**.
 - At the **2018 Asian Games in Jakarta**, India performed well and returned with **70 medals**, including a haul of **16 gold medals**.
 - It was the **first time in Asian Games history** that **India's medals tally crossed the three-figure**

mark. By doing so, they became the **only fourth country after China (383), Japan (188) and the Republic of Korea (190)** to win 100 or more medals in a single edition of the Asian Games.

- **Athletes Performance:**
 - Athletics turned out to be the **most productive sport** with a **total of 29 medals - six gold, 14 silver and nine bronze**.
- **Hockey:**
 - The **India men's hockey team won an Asian Games gold** and booked a Paris Olympics berth with a 5-1 thrashing of Japan.
- **Introduction of New Sports:**
 - 2023 Games saw two medal sports make their debut: **e-Sports and Breakdancing**.
 - Apart from them, **Cricket, and board games - Go, Xiangqi, and Chess** returned to Asian Games in this edition after **not featuring in the 2018 Asiad**.



What are the Asian Games?

- **About:**
 - The Asian Games is the **biggest sports competition in Asia**, held once every **four years**. The symbol for the Asian Games is the rising sun with interlocking rings.

Note:

- It is recognised by the **International Olympic Committee**.

➤ **Background and Inauguration:**

- After the **Second World War**, many Asian countries gained independence and the Indian **International Olympic Committee** proposed the idea of Asian Games as a sporting event, where all Asian nations can be represented.
- The first-ever Asian Games were held in **New Delhi in 1951**.

➤ **Regulation:**

- Asian Games were regulated by the **Asian Games Federation from 1951 to 1978**. Since 1982, the **Olympic Council of Asia** has regulated the Asian Games.

➤ **India as a Host:**

- **India is a founder member of Asian Games** and also the **host of the first Asian Games**.
- The 9th edition of the Asian Games was also **held in New Delhi in November and December 1982**.
- **Appu, the Indian elephant**, was the first mascot to be used for the Asian Games.

Asia-Pacific Institute for Broadcasting Development

Why in News?

Recently, in an unprecedented development, India has been elected president of the **Asia-Pacific Institute for Broadcasting Development (AIBD)** General Conference (GC) for the third successive term.

- This was the **first in the history of AIBD** as this reflects the confidence of broadcasting organizations worldwide in India's capabilities in guiding and innovating in the field of broadcasting.

What is Asia-Pacific Institute of Broadcasting Development (AIBD)?

➤ **About:**

- The **Asia-Pacific Institute for Broadcasting Development (AIBD)** was established in 1977 under the aegis of **United Nations Educational, Scientific and Cultural Organization (UNESCO)**.

- It is a unique regional **intergovernmental organization servicing countries of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)** in the field of **electronic media development**.

- Its secretariat is situated in **Kuala Lumpur** and is hosted by the Government of Malaysia.

➤ **Objective:**

- The AIBD is mandated to **achieve a vibrant and cohesive electronic media environment in the Asia-Pacific region** through policy and resource development.

➤ **Founding Members:**

- The **International Telecommunication Union (ITU)**, the **United Nations Development Programme (UNDP)**, and the **UNESCO** and the **Asia-Pacific Broadcasting Union (ABU)** are founding organizations of the Institute and they are non-voting members of the General Conference.

➤ **Members:**

- The AIBD currently has **92 member organizations** from across **44 countries**, including **26 government members** (countries) represented by 48 broadcasting authorities and broadcasters, and **44 affiliates** (organizations) represented by 28 countries and regions in Asia, Pacific, Europe, Africa, Arab States and North America.

➤ **Asia Media Summit:**

- **Asia Media Summit** is the **annual conference** organized by (AIBD) in collaboration with its partners and international organizations.
- The Conference is attended by Decision makers, media professionals, scholars, and stakeholders of news and programming from **Asia, Pacific, Africa, Europe, Middle East, and North America**.

➤ **Secretariat:**

- **Kuala Lumpur, Malaysia**.

➤ **India and AIBD:**

- India is **one of the founding members of AIBD**.
- **Prasar Bharati**, India's public service broadcaster, is the representative body of the **Ministry of Information & Broadcasting**, Government of India, at AIBD.

Note:



drishti

Prasar Bharti

- Prasar Bharati is a **statutory autonomous body**.
- It is the **Public Service Broadcaster** of the country.
- It was established under the **Prasar Bharati Act in 1997**.
- The Prasar Bharati Corporation's main objective is to provide autonomy to **Doordarshan and Akashvani** in order to "educate and entertain the public."

Arunachal Pradesh Gets GI Tags for Three Products

Why in News?

Arunachal Pradesh has recently received the **Geographical Indication (GI)** tag for **Arunachal Yak Churpi**, **Khaw Tai (Khamti rice)**, and **Tangsa textile**.

What Sets Arunachal Yak Churpi, Khaw Tai and Tangsa Textiles Apart?

➤ **Arunachal Yak Churpi:**

- **Origin:** Arunachal Yak Churpi is derived from the **milk of the Arunachali yak**, a rare breed found primarily in the **West Kameng and Tawang districts** of Arunachal Pradesh.
 - **Tribal Yak Pastoralists:** This milk is obtained from yaks reared by **Brokpas**, a tribal community known for their expertise in yak husbandry.
 - These pastoralists practice seasonal migration, taking their yaks to higher altitudes during summers and descending to mid-altitude mountainous regions in winters, as **yaks cannot survive at lower altitudes during summer**.
 - **Health Benefits and Usage:** Churpi is rich in proteins and serves as a vital source of nutrition in the vegetation-scarce, cold, and hilly mountainous regions of Arunachal Pradesh.
- **Khaw Tai (Khamti Rice):**
- Khaw Tai, a chewy sticky rice variety, hails from the **Namsai region** and is cultivated by traditional **Khampti tribal farmers**.
- **Tangsa Textile:**



- The **Tangsa Textile** products crafted by the **Tangsa tribe of Changlang district** are renowned for their **exotic designs and vibrant colors**.



- This traditional craftsmanship reflects the cultural richness of the region.

What is a GI Tag?

- A **geographical indication (GI)** tag is a name or sign used on certain products that correspond to a specific geographical location or origin.
 - **For example**, Darjeeling Tea, Kanchipuram Silk, etc.
- Geographical indications are recognized as a part of **intellectual property rights (IPRs)** under **Articles 1(2) and 10** of the **Paris Convention** and also under **Articles 22 to 24** of the **Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement**
 - India, as a **World Trade Organisation (WTO)** member, implemented the **Geographical Indications of Goods Act, 1999**, which became effective on September 15, 2003, to protect such indications.
 - A registered GI is valid for 10 years. It can be renewed from time to time for a further period of 10 years each.

Nobel Peace Prize 2023

Why in News?

Recently, Iranian activist **Narges Mohammadi** has been chosen by the **Royal Swedish Academy** for the coveted **Nobel Peace Prize, 2023** for her fight against the oppression of women in Iran and her fight to promote human rights and freedom for all.

- The Prize recognizes their contribution for many years, **promoting the right to criticize arbitrary policies and protecting the fundamental rights of citizens**.
- In **2022, Nobel Peace Prize** was awarded to human rights advocate **Ales Bialiatski from Belarus**, the **Russian human rights organization Memorial**, and the **Ukrainian human rights organization Center for Civil Liberties**.

Note:

- Other 2023 Nobel Prizes for **Literature**, **Chemistry**, **Physics** and **Medicine** have already been announced.

Who is Narges Mohammadi?

➤ About:

- The **2023 Nobel Peace laureate Narges Mohammadi** is a woman, a human rights advocate, and a freedom fighter.
 - As per the Academy, this year's Nobel Peace Prize also recognises the hundreds of thousands of people who have demonstrated against the theocratic regime's policies of discrimination and oppression targeting women.
 - The motto adopted by the Iranian demonstrators – **"Woman – Life – Freedom"** – suitably expresses the dedication and work of Narges Mohammadi.

➤ Contributions:

- Ms. Mohammadi advocates **against the death penalty in a country that reports most state executions**. A strong advocate of women's rights since her days as a college student.
- She was **arrested for the first time in 2011** for her efforts to assist incarcerated activists and their families.

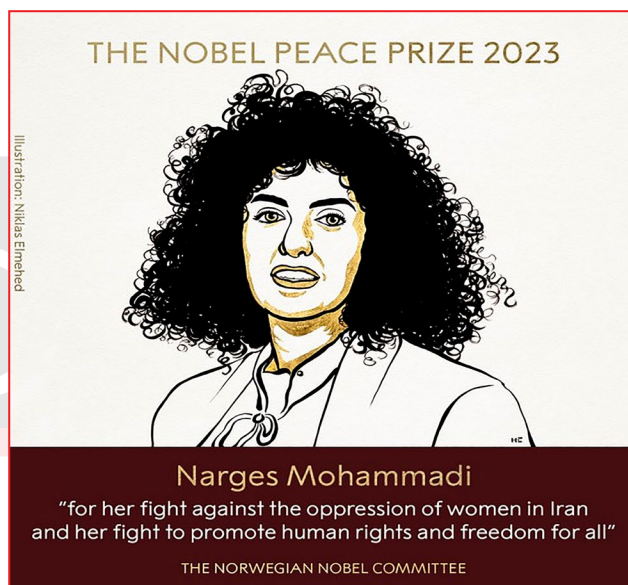
➤ Fight for Human Rights:

- While in prison, she began opposing the regime's systematic use of torture and **sexualised violence against political prisoners, especially women**, that is practised in Iranian prisons.
- **During Mahsa Amini Protests (Iranian Hijab Movement)**, she expressed support from the prison for the demonstrators and organized solidarity actions among her fellow inmates.
- **Other Award Received by Mohammadi are:**
 - Alexander Langer Award 2009
 - UNESCO/Guillermo Cano World Press Freedom Prize and the Olof Palme Prize earlier in 2023.
 - Her book **'White Torture: Interviews with Iranian Women Prisoners'** also won an award for reportage at the International Film Festival and Human Rights' Forum.

What is the Iranian Hijab Movement?

- The Iranian law strictly recommends women to wear hijabs or headscarves with their regular outfits. **Anyone not following this is recently being arrested, warned, or punished severely.**

- **Mahsa Amini, a 22 years old youth**, was arrested for breaching the dress code of Iranian women.
- The arrest of Mahsa Amini **by the Iranian morality police**, followed by her death, led to the outbreak of a massive protest by the Iranian women demanding greater freedom.
 - This demand at present is no longer restricted to Iran but has taken the shape of a worldwide protest.
 - The other important western cities, including Auckland, London, Melbourne, New York, Paris, Rome, Seoul, Stockholm, Sydney, and Zurich, also saw demonstrations with banners displaying **"Women, life, liberty."**



Doping Practices In India

Why in News?

Recent events at the Delhi athletics championship have highlighted the extent of **Doping** issue, as competitors fled from doping testers, and some events witnessed a mere single participant.

What is the Doping Menace?

➤ About:

- Consumption of **certain prohibited substances** by athletes to enhance performance.

➤ Extent:

- Athletes **across all levels**, from school meets to national championships, engaging in amateur doping practices.

Note:

- Hopes of **career breakthroughs** and national team spots drive these risky behaviours.
- Most common usage involves drugs such as **Anabolic Steroids**.

What is the Long-standing Issue of Doping in Indian Sports?

- **Pervasive Syringe Culture:**
 - Images of syringes in stadium bathrooms have persisted for decades.
 - Lack of proactive measures to deter doping practices.
- **Ineffectiveness of National Anti-Doping Agency:**
 - NADA's apparent absence in the lead-up to events, such as the Delhi championship.
 - Immediate results when officials conduct tests, indicating widespread doping.
- **Neglected Testing in Remote Areas:**
 - Competitions in remote regions proceed without anti-doping officials, potentially concealing higher doping rates.

What Are the Root Causes of the Doping Menace?

- **Coaches and Parents' Quick-fix Mentality:**
 - Coaches and parents encourage athletes to seek shortcuts to success.
 - Pressures leading to unethical choices among aspiring athletes.
- **Lethargy in India's Anti-Doping Machinery:**
 - Inadequate measures to deter doping and instill fear of testing.
 - A lack of consistent and stringent anti-doping efforts.
- **Societal and Cultural Causes:**
 - The **lack of effective anti-doping education** and awareness among athletes and the general public.
 - The availability and accessibility of performance-enhancing drugs and methods.
 - The **culture and environment of sport and society**. Athletes may be exposed to a culture that tolerates or encourages doping, either explicitly or implicitly.

What are the Potential Solutions?

- **Promoting a Clean Sports Culture:**
 - Encouraging honesty and integrity in sports from a young age.

- Fostering a culture where doping is unacceptable.
- **Strengthening Anti-Doping Measures:**
 - Increasing the presence of anti-doping officials in competitions, even in remote areas.
 - Implementing more stringent and surprise testing.
- **Awareness Campaigns:**
 - Educating athletes, coaches, and parents about the dangers of doping.
 - Raising awareness about the consequences of doping on athletes' health and careers.
 - Reducing the availability of doping mixed inputs and diets which sports persons consume unknowingly through the **Food Safety and Standards Authority of India (FSSAI)**.

What are the Measures taken by the Government to Eliminate Doping in Sports?

- **NADA:**
 - **National Anti-Doping Agency (NADA)** was set up as a registered society **under the Societies Registration Act of 1860** with a mandate for Dope free sports in India.
- The Lok Sabha passed the **National Anti-Doping Bill 2021** which seeks to create a statutory framework for the **National Anti-Doping Agency (NADA)**.
- **National Drugs and Psychotropic Substances Act (NDPS) Act, 1985:** It prohibits a person from producing, possessing, selling, purchasing, transporting, storing, and/or consuming any narcotic drug or psychotropic substance.
- **WADA:**
 - The **World Anti-Doping Agency (WADA)** was set up under the International Olympic Committee to develop, harmonize, and coordinate anti-doping regulations across all sports and countries.

Nobel Prize in Literature 2023

Why in News?

Recently, the **Nobel Prize in Literature for 2023** was awarded to **Jon Fosse** "for his innovative **plays and prose which give voice to the unsayable.**"

Note:

Note:

- The Nobel Prize in Literature 1913 was awarded to **Rabindranath Tagore** "because of his **profoundly sensitive, fresh and beautiful verse**, by which, with consummate skill, he has made his poetic thought, expressed in his own English words, a part of the literature of the West".

Who is Jon Fosse?

- Jon Fosse, a **Norwegian author and dramatist**, writes in **Norwegian Nynorsk**, the less common of the two official versions of Norwegian language.
- Jon Fosse is celebrated for his writing style, often referred to as "**Fosse minimalism**."
- His style is characterized by simple, minimal, and searing dialogue, drawing comparisons to literary giants like **Samuel Beckett and Harold Pinter**, both of whom have previously been awarded the Nobel Prize in Literature.
 - His themes explore the **absurdity, the futility and yet the power of the human condition**; everyday confusions and irresolutions; and the **difficulty of forming actual connections**.
- **Notable works** by Fosse include "A New Name: Septology VI-VII," "I Am the Wind," "Melancholy," "Boathouse," and "The Dead Dogs."

**Who are the Other Recent Nobel Laureates in the Field of Literature?**

- **2022:**
 - **Annie Ernaux** "for the courage and clinical acuity with which she uncovers the roots, estrangements and collective restraints of personal memory".
- **2021:**
 - **Abdulrazak Gurnah** "for his uncompromising and compassionate penetration of the effects of colonialism and the fate of the refugee in the gulf between cultures and continents".
- **2020:**
 - **Louise Glück** "for her unmistakable poetic voice that with austere beauty makes individual existence universal".

Nagorno-Karabakh Conflict

Why in News?

Recently, Azerbaijan launched a military operation in the disputed **Nagorno-Karabakh region**, resulting in casualties. The operation is part of a long-standing dispute between **Azerbaijan and Armenia** over the region

What is the Nagorno-Karabakh Conflict?

- Nagorno-Karabakh, known as **Artsakh by Armenians**, is a landlocked mountainous area in the Caucasus region (the transcontinental region between the Black Sea and the Caspian Sea).
 - It is internationally **recognised as part of Azerbaijan** but its **inhabitants are predominantly ethnic Armenians**.
 - They have their own government which has enjoyed close links to Armenia's but has not been officially recognised by Armenia or any other country.
- The conflict dates back to the late 1980s when the region declared its independence from Azerbaijan as the Soviet Union collapsed.
 - The **first war erupted between Armenia and Azerbaijan** over the territory, which ended with a **ceasefire in 1994**, leaving Nagorno-Karabakh and some surrounding areas **under Armenian control**.
 - The ceasefire was frequently violated by both sides, and several attempts to negotiate a peaceful settlement failed.
- In **2020, Azerbaijan launched the Second Karabakh War**, winning a resounding victory and retaking seven surrounding districts and about a third of Nagorno-Karabakh.
 - Russia brokered a peace deal after the Second Karabakh War in 2020 and provided for up to 1,960 Russian peacekeepers stationed in the region.



Note:



drishti

Azerbaijan:

- Azerbaijan is a country in Asia that is bordered by Russia, Georgia, Armenia, and Iran.
 - The east of the country is bordered by the Caspian Sea.
 - Much of the north and west is covered by the Caucasus Mountains.
- **Capital city:** Baku.
- Azerbaijan is abundant in oil and natural gas.
- **Yanar Dağ**, a famous site in Azerbaijan, has a natural eternal fire fueled by seeping natural gases, burning for over 65 years along the **Caspian Sea**. This unique phenomenon aligns with Azerbaijan's nickname, **"The Land of Fire."**

Armenia:

- A landlocked country in the **Caucasus** with Turkey to the west, Georgia to the north, and Azerbaijan to the east.
- **Capital:** Yerevan.
- Armenia is a **mountainous country**.
 - **Highest Peak:** Mount Ararat.

Project Udbhav

Why in News?

Recently, the **Indian Army** in partnership with the **United Service Institution of India (USI)**, wrapped up a hybrid-panel discussion as part of **Project Udbhav**.

- The discussion focused on **"The Evolution of Indian Military Systems, Warfare, and Strategic Thinking: Current Research and Future Directions."**

What is Project Udbhav?

- Project Udbhav is an initiative set in motion by the Indian Army to **rediscover the profound Indic heritage** of statecraft and strategic thoughts derived from ancient Indian texts of **statecraft, warfare, diplomacy and grand strategy**.
 - It focuses on a broad spectrum including **Indigenous Military Systems, Historical Texts, Regional Texts and Kingdoms, Thematic Studies, and intricate Kautilya Studies**.
 - At its core, Project Udbhav seeks **to bridge the historical and the contemporary**.

- The project goes beyond rediscovering historical narratives; **it aims to develop an indigenous strategic vocabulary** deeply rooted in India's multifaceted philosophical and cultural heritage.
 - The ultimate objective is to integrate ancient wisdom into modern military **pedagogy**, allowing the Indian Army to draw from centuries-old principles in today's complex strategic landscape.
- In connection with Project Udbhav, the USI will conduct a **Military Heritage Festival on 21st and 22nd October, 2023**.

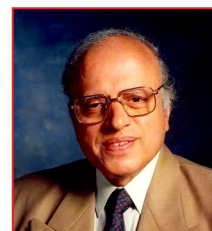
United Service Institution of India

- USI is a **national security and defense services think tank** based in New Delhi, India.
 - It describes its aim as the **"furtherance of interest and knowledge in the art, science and literature of the defense services"**.
- It was founded in 1870 by a soldier scholar, **Colonel (later Major General) Sir Charles MacGregor**.

MS Swaminathan

Why in News?

Monkomb Sambasivan (MS) Swaminathan, hailed as the **'Father of the India's Green Revolution'**, passed away at the age of 98.



Who was MS Swaminathan?

- **About:**
 - Born on 7th August, 1925, in Kumbakonam, Tamil Nadu, India, he was deeply influenced by **Mahatma Gandhi's principles** and India's struggle for independence.
 - He initially aimed to pursue a medical career but shifted his focus to agriculture **due to the Bengal famine of 1942-43**, a tragic event that left a profound impact on him and stirred his passion for improving India's agricultural sector.
- **Career:**
 - He pursued agricultural studies and research, delving into genetics and breeding, with the belief that improved crop varieties could have a significant impact on farmers' lives and help overcome food scarcity.

Note:

- He served as the Director General of the **Indian Council of Agricultural Research (ICAR)**, where he played a crucial role in advancing agricultural research and education in India.
- He also served as the **Independent Chairman of the Food and Agricultural Organization Council** and held leadership roles in international conservation and agricultural organizations.

➤ Contributions:

- **Role in the Green Revolution:** He was widely recognized for his pivotal role in the **Green Revolution**, a transformative phase in Indian agriculture that significantly increased crop productivity and ensured **Food Security** for the nation.
- **High-Yielding Wheat and Rice:** Swaminathan's groundbreaking **work with Norman Borlaug** in developing high-yielding wheat and rice varieties, notably the **semi-dwarf wheat varieties**, revolutionized agriculture in India during the 1960s and '70s.
 - This transformation **significantly increased crop yields**, making India self-sufficient in food production and averting the looming threat of famine.
- **Farmer Welfare:** Swaminathan **advocated for the welfare of farmers**, emphasizing fair prices for agricultural produce and sustainable farming practices.
 - As chair of the National Commission of Farmers, the '**Swaminathan Report**' **probed the causes of farm distress**.
 - One of its recommendations, that **Minimum Support Prices (MSP)** should at least be 50% more than average production costs, continues to be a primary demand of farm unions across India. MSP is the price at which the government purchases crops directly from farmers.
- **Protection of Plant Varieties and Farmers' Right Act 2001:** He played a pivotal role in developing the **Protection of Plant Varieties and Farmers' Right Act 2001**.
- **Other Contributions:**
 - He will be remembered forever for his role in the global recognition of the 'Gulf of Mannar Marine Biosphere (Go MMB)' and Kerala's Kuttanad known for '**traditional cultivation of**

paddy below sea-level' as a globally important agricultural heritage site.

- He also contributed to the conservation and enhancement of the biodiversity and ecology of these regions.
- He also established the M. S. Swaminathan Research Foundation (MSSRF) in 1988 to promote sustainable agriculture and rural development.
 - MSSRF focuses specifically **on tribal and rural communities with a pro-poor, pro-women and pro-nature approach**.

➤ Accolades:

- He has received numerous accolades and awards for his outstanding contributions to agriculture, including being honored as the **first World Food Prize Laureate in 1987**.
- He has also been **conferred with the Padma Shri (1967)**, Padma Bhushan (1972) and Padma Vibhushan (1989).
- Various international honors including the **Ramon Magsaysay Award (1971)** and the **Albert Einstein World Science Award (1986)**.

Airport Codes

Why in News?

The **upcoming Noida International Airport in Jewar** was recently awarded its **own unique international three-letter code, 'DXN'**, by the **International Air Transport Association (IATA)**.

- '**D**' signifies Delhi, '**N**' represents Noida, and '**X**' symbolizes connectivity to the globe.

What are Airport Codes?

➤ About:

- Airport codes serve as **distinctive identifiers for airports worldwide**. These codes are essential for a **seamless travel experience** and are used in various contexts, from **tickets and boarding passes to airport signage**.

➤ Types:

- Each airport actually has two unique codes: **one assigned by IATA and another by the International Civil Aviation Organization (ICAO)**, a branch of the **United Nations**. These codes have distinct purposes:

Note:



drishti

- IATA Codes (Three-Digit Codes):
 - Created in the 1960s to standardize airport identification.
 - Used for **passenger-facing operations**.
 - Appear on **tickets, boarding passes, signage**, and other consumer-related materials.
 - Examples include **DEL for Indira Gandhi International Airport (Delhi)** and **BOM for Chhatrapati Shivaji Maharaj International Airport (Mumbai)**.
- ICAO Codes (Four-Digit Codes):
 - Utilized by **industry professionals** such as **pilots, air traffic controllers, and airport planners**.
 - Facilitate **precise communication in aviation**.
 - Examples include **VIDP for Indira Gandhi International Airport (Delhi)**.

International Air Transport Association

- IATA is the trade association for the world's airlines, representing some 300 airlines or **83% of total air traffic**.
 - It was founded in **Havana, Cuba, in April 1945**.
- **Head Office:** Montreal, Canada.

International Civil Aviation Organization

- In 1944, **54 nations** came together to draft the Convention on International Civil Aviation, also known as the **'Chicago Convention.'**
- ICAO came into being on **4th April 1947**. In **October 1947**, ICAO became a specialized agency of the **United Nations linked to the Economic and Social Council (ECOSOC)**.
 - India is one of the **ICAO's founder members**, having attended the Chicago Conference in 1944
- ICAO is dedicated to **developing safe and efficient international air transport for peaceful purposes** and ensuring a reasonable opportunity for every state to operate international airlines.
- **Headquarter:** Montreal, Canada



Note:

Rapid Fire Current Affairs

Highlights

- Tamil Author Sivasankari Conferred Saraswati Samman
- NASA Finds Carbon and Water in Asteroid Bennu Samples
- Passport to Earning (P2E) Initiative
- INS Sagardhwani
- The Phonotaxis Phenomenon
- Establishment of an Autonomous Body Mera Yuva Bharat Approved
- Indian Army's Strategic Transition
- USS Gerald R Ford
- Loknayak Jayaprakash Narayan Birth Anniversary
- Nanaji Deshmukh Birth Anniversary
- World Sight Day
- India Launches Operation Ajay for Citizens' Safe Return from Israel
- REC Limited Launches 'SUGAM REC' Mobile App for Bond Investors
- International Day of the Girl 2023
- Tele MANAS Seva
- The Optical Phenomenon of Rainbows
- National Waterways 44 (Ichamati River)
- Earthquake Strikes Northwestern Afghanistan
- Third Intifada
- Universe's Earliest Galaxies
- Operation Kachchhap
- Automatic 'Status Holder' Certificates Boost Indian Exports
- Indian Air Force Day 2023
- Sixth Basic Taste
- World Dyslexia Day
- World Cerebral Palsy Day
- Sarakka Central Tribal University Approved for Telangana
- Enzyme Mimetic to Degrade Pollutants in Waste-Water
- Using Gravity to Solve Power's Problem
- 15-Minutes Cities and the Conspiracy Theories
- Government Exempts Aviation from IBC's Moratorium
- Amazon River Dolphins
- Fish Mint: A Herb with Surprising Health Benefits
- Circular Migration
- New Study Challenges Existence of Lightning on Venus
- Military Nursing Service (MNS) celebrates 98th Raising Day
- National Turmeric Board
- New Fish Species Discovered in Nagaland's Milak River
- Armageddon Reedtail
- SAMPRITI- XI Exercise 2023
- World Animal Day
- Saudi Arabia Cuts Oil Premium for India
- Karman Line
- Pink Bollworm
- Shri Lal Bahadur Shastri
- IAF Boosts Indigenous Missile Arsenal with Astra-MK1

Tamil Author Sivasankari Conferred Saraswati Samman

- Tamil writer Sivasankari was honoured with the **Saraswati Samman 2022** for her memoir(biography) "**Surya Vamsam**."
 - "Surya Vamsam" is a two-volume memoir that traces the author's literary journey and societal transformations over seven decades.



- This award is given annually to literary works published in the last 10 years by Indian writers of **22 languages included in the Eighth Schedule of the Indian Constitution**.
- The award is presented by the K.K. Birla Foundation includes a **citation, plaque, and a prize of Rs. 15 lakh**.
- The Saraswati Samman is **among the highest recognitions in the field of Indian literature**. Besides the Saraswati Samman, the **Vyas Samman** and the **Bihari Puraskar** are other literary awards instituted by the foundation.

Read more: Eighth Schedule of the Indian Constitution.

Note:

NASA Finds Carbon and Water in Asteroid Bennu Samples

- **The National Aeronautics and Space Administration (NASA)** confirms the **presence of high-carbon content and water-bearing clay minerals** in samples collected from the **asteroid Bennu (formerly 1999 RQ36)**.
 - Bennu is a **4.5-billion-year-old** small near-Earth asteroid that **passes close to Earth every six years**. The asteroid was discovered by a team from the **NASA-funded Lincoln Near-Earth Asteroid Research team in 1999**.
 - The material collected from Bennu **acts as a time capsule from the early days of our solar system** and can help answer questions **about the origins of life** and the nature of asteroids.
- NASA's **Origins, Spectral Interpretation, Resource Identification, and Security-Regolith Explorer (OSIRIS-REx)**, the first U.S. effort to retrieve an asteroid sample, launched in 2016 for the journey to Bennu.
- The mission's success enhances our understanding of asteroids, including those that could pose threats to Earth.
 - Scientists will analyze the samples further over the next two years to unlock insights into our solar system's origins.

Read more: **NASA's OSIRIS-REx Mission**

Passport to Earning (P2E) Initiative

UNICEF's global learning-to-earning solution, **Passport to Earning (P2E)**, has skilled and certified **more than one million young people in India** in areas of financial literacy and digital productivity.

- Aligned with the **National Education Policy (NEP) 2020**, the P2E program offers free access to certificate courses in **digital productivity, financial literacy, employability skills, and other in-demand, job-ready skills**.
 - Notably, **62% of the beneficiaries of P2E courses in India** are **adolescent girls and young women**.
- With the goal of providing long-term sustainable skills to 5 million youth in India **aged 14-29 by 2024** and connecting them to employment and entrepreneurship opportunities, P2E is a vital contribution to the nation's educational and economic landscape.

Read more: **National Education Policy 2020**

INS Sagardhwani

INS Sagardhwani, the oceanographic research vessel of the **Naval Physical & Oceanographic Laboratory (NPOL)**, Kochi under the **DRDO**, set sail



on the **Sagar Maitri (SM)** Mission-4 from South Jetty, Southern Naval Command (SNC), Kochi.

- INS Sagardhwani's mission includes **scientific deployments in the Northern Arabian Sea** and collaborative research programs with institutions like **Sultan Qaboos University in Oman**, fostering stronger working relationships between Indian and IOR ocean researchers.
- INS Sagardhwani is a **marine acoustic research ship** that is constructed indigenously and was launched in **July 1994**.

The Phonotaxis Phenomenon

Recently, it has been discovered that certain creatures like Insects, Bats exhibit **positive and negative phenomena of Phonotaxis** in response to the existing environmental and anatomical conditions.

- **Phonotaxis** is the movement by an animal in response to a sound. It has mostly been observed among crickets, moths, frogs, and toads, among a few other creatures.
 - The **purpose of positive phonotaxis is attraction**. It usually happens when the females of a particular species – including those of crickets and frogs – are attracted to the sounds made by the males. **Mediterranean house geckos (*Hemidactylus turcicus*)** use positive phonotaxis.
 - **Negative phonotaxis**, on the other hand, serves to repel or warn, such as when the sound of a predator nearby signals to an animal that it needs to move away. **Crickets** in particular have been found to steer themselves away from low-intensity ultrasound typically associated with bats (which use it for echolocation).

Read More: **Dolphins**

Note:

Establishment of an Autonomous Body Mera Yuva Bharat Approved

Recently, the Union Cabinet has approved the establishment of an **autonomous body Mera Yuva Bharat (MY Bharat)** to serve as an overarching enabling mechanism powered by technology for youth development and youth led development.

- MY Bharat, an autonomous body will benefit the **youth in the age-group of 15-29 years**, in line with the definition of 'Youth' in the **National Youth Policy**. In case of programme components specifically meant for the **adolescents, the beneficiaries will be in the age-group of 10-19 years**.
- Under this new arrangement, with access to resources & connection to opportunities, **youth would become community change agents and nation builders** allowing them to act as the **Yuva Setu** between the **Government and the citizens**.
- The Body will improve leadership skills through experiential learning by **shifting from isolated physical interaction to programmatic skills** and Create a centralized youth database.

Read More: **Youth In India Report, 2022**, **National Youth Day, 2022**

Indian Army's Strategic Transition

The **Indian Army** is undergoing significant transformation, with the potential conversion of its **logistics and transport units into the Territorial Army (TA)**.

- The TA is not only expanding its role but also bolstering its capabilities by recruiting **Chinese language interpreters** for border personnel meetings and **cybersecurity** experts to assist the Army.
- The TA's primary function is to relieve the regular army of static duties and **provide crucial support during emergencies and disasters**.

Read more: **Indian Army**

USS Gerald R Ford

In light of recent **conflict escalation in Israel**, the **US** has deployed the **USS Gerald R Ford carrier strike group**

(CSG) to the **Eastern Mediterranean**, demonstrating its support for Israel and the carrier's role in military operations.



- The **USS Gerald R Ford (CVN 78)**, commissioned in 2017, bears the name of former U.S. President **Gerald R Ford**, who served from **1974 to 1977**.
 - It is considered as one of the **largest warships ever constructed**. It displaces **100,000 tonnes at full load**. It can achieve a top speed of over 30 knots, equivalent to 56 kilometers per hour.
- **Aircraft carriers**, including the **Gerald R Ford**, are both offensive weapons and symbols of a nation's military might. Consequently, they always operate as part of a **carrier strike group**.

Loknayak Jayaprakash Narayan Birth Anniversary

Recently, the Prime Minister of India has paid tributes to **Loknayak Jayaprakash Narayan** on his birth anniversary.

- Jayaprakash Narayan born on **11th October 1902**, in **Sitabdiara, Bihar**, popularly referred to as **JP or Lok Nayak (People's Leader)**, was an Indian Independence activist, social reformer and political leader.
 - Influenced by both **Marxist ideas in the US** and **Gandhian ideology**.
- Joined the **Indian National Congress in 1929** and participated in the **civil disobedience movement** and **Quit India Movement**.
- Devoted his life to the **Bhoodan Yajna Movement**, advocating land redistribution to the landless, inspired by Vinoba Bhave.
- He led the movement against the Indira Gandhi Regime in response to electoral law violations, promoting a program of **'Sampoorna Kranti' or total revolution in 1974**.
 - The 'Total Revolution' had seven components: political, social, economic, cultural, ideological, educational, and spiritual.
- His objective was to bring about societal change in line with the **ideals of Sarvodaya**, a **Gandhian philosophy emphasizing progress for all**.

Note:

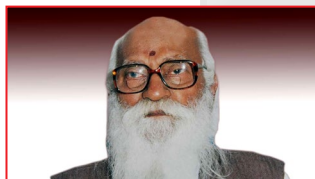
- Jayaprakash Narayan was posthumously awarded the **Bharat Ratna** in 1999. **Died: 8th October, 1979.**



Read more: **Birth Anniversaries of Jayaprakash Narayan and Nanaji Deshmukh**

Nanaji Deshmukh Birth Anniversary

Recently, the Prime Minister of India has paid tributes to **Nanaji Deshmukh** on his birth anniversary.



- Nanaji Deshmukh, born on 11th October 1916 in Maharashtra's Hingoli district, was a prominent **social activist, politician, and a key figure in India's political landscape.**
- Active participant in **Acharya Vinoba Bhave's Bhoodan Movement.**
- Played a pivotal role in Jayaprakash Narayan's agitation for **total revolution.**
- Focused on **social reform, health, education, and rural self-reliance.**
- Contributed significantly to **anti-poverty and minimum needs programs.**
- Established **Chitarkoot Gramoday Vishwavidyalaya**, India's first rural university, and served as its Chancellor.
- Nominated to the **Rajya Sabha** in 1999 in recognition of his services to the nation.
- Awarded **Padma Vibhushan** in 1999 and was posthumously honoured with the **Bharat Ratna by the President of India in 2019.**
- **Death: 27th February, 2010.**

Read more: **Birth Anniversaries of Jayaprakash Narayan and Nanaji Deshmukh**

World Sight Day

World Sight Day is a global event held **every second Thursday in October** to raise awareness about **blindness and vision impairment.**

- In 2023, it falls on 12th October, and the theme is **"Love your eyes at work."**
 - The emphasis this year is on educating people about **safeguarding their vision in the workplace.**
- Globally, at least **1 billion people** have near or distance vision impairment that could be prevented or has yet to be addressed (**WHO**).

Read more: **World Sight Day**

India Launches Operation Ajay for Citizens' Safe Return from Israel

India has initiated **"Operation Ajay"** to assist its citizens who wish to return from **Israel**. Special charter flights and arrangements are being organized for their safe repatriation.

- A 24-hour Control Room has been established in the **Ministry of External Affairs** to monitor the situation in Israel and Palestine and provide information and assistance.
- The announcement was made concurrently with Israel's ongoing military operations targeting **Hamas militants in the Gaza Strip.**
 - These actions were undertaken in response to a severe and violent attack that occurred **within the borders of Israel.**

Read more: **Israel-Palestine Conflict**

REC Limited Launches 'SUGAM REC' Mobile App for Bond Investors

REC Limited, a Maharatna Central Public Sector Enterprise under the **Ministry of Power**, has introduced a mobile application called **'SUGAM REC'**, designed exclusively for current and prospective investors in **REC's 54EC Capital Gain Tax Exemption Bonds.**

Note:



drishti

- This app offers comprehensive information about investments in REC 54EC Bonds, a type of fixed income financial instrument that provides **tax exemptions on capital gains under Section 54EC of the Income Tax Act.**
 - The term **capital gain** refers to any profit or gain that is received from the sale of a **capital asset.**
- REC Limited, **established in 1969**, operates as a **non-banking finance company (NBFC)** with a focus on financing and developing the power sector across India.

International Day of the Girl 2023

Recently, a 21 year old woman from Chennai got the chance to **live a day in the shoes of a diplomat** after winning a competition held by the British High Commission to commemorate the **International Day of the Girl 2023.**

- International Day of the Girl Child, observed annually on **11th October** was first celebrated in 2012.
- The **Beijing Declaration and Platform for Action in 1995**, proposed an action plan to advance the rights of girls.
- In 2011, the **United Nations General Assembly** adopted Resolution 66/170 to declare **11th October as the International Day of the Girl Child.**
 - The day aims to focus on the **importance of girls' education, their rights, and promoting gender equality.**
 - It urges the global community to move beyond reaffirming commitments and invest boldly in the action needed to make changes that could empower girls.
- **Theme of International Day of the Girl 2023:** "Invest in Girls' Rights: Our Leadership, Our Well-being."

Read more: [International Girl Child Day](#)

Tele MANAS Seva

On World Mental Health Day, the Ministry of Health and Family Welfare highlighted the success of **Tele Mental Health Assistance and Networking Across States (Tele MANAS) Seva.**

- Tele-MANAS Seva is a mental health counseling service launched on **World Mental Health Day 2022.**

- The aim of Tele-MANAS is to provide universal access to equitable, accessible, **affordable and quality mental health care through 24X7 tele-mental health services** as a digital component of the **National Mental Health Programme (NMHP)** across all Indian States and UTs with assured linkages.
- The Tele MANAS helpline offers toll-free access with **audio calling and an auto-call back system.** Trained counselors **provide care, referring to specialists when needed, including audio and video options.**
 - For urgent in-person care, referrals to health centers are arranged via **eSanjeevani**, from Health and Wellness Centers to tertiary care centers.
- Tele-MANAS has counseled more than **3,50,000 people till 11th October 2023** and more than **1,000 calls are being received on this helpline every day.**

Read more: [World Mental Health Day 2022, National Telemedicine Service of India: eSanjeevani](#)

The Optical Phenomenon of Rainbows

Rainbows, a meteorological marvel gracing the sky with their **radiant hues post-rainfall**, owe their existence to the **intricacies of light refraction and reflection.** After a substantial downpour, these optical phenomena can extend across the horizon, appearing as though **they touch the Earth's surface.**

- The underlying cause can be attributed to the **bending and separation of sunlight's rays as they interact with raindrops.**
 - Each raindrop essentially acts as a **miniature prism**, refracting and dispersing light into its constituent colors.
 - The angles at which these colors reach an observer's eye remain constant.
- The rainbow's location in the sky is determined by the sun's height.
 - **Raindrops**, oriented opposite to the sun at specific angles, can create a full circle, but from ground level, we see an arc due to the horizon.
 - But, under special conditions like a setting sun, **observers from high vantage points, such as mountain tops or hot-air balloons**, can experience the full circular display of this optical marvel.

Read more: [Rainbows](#)

Note:

National Waterways 44 (Ichamati River)

The Ministry of Ports, Shipping, and Waterways has initiated a significant **dredging project on National Waterways 44**, which includes the Ichamati River in West Bengal. This project aims to **increase the navigational depth of the Ichamati River**, ultimately boosting its capacity to manage tidal influences.

- The Ichamati River, serving as a **boundary between India and Bangladesh**, flows through both countries and has three distinct sections. Additionally, in the North 24-Parganas district in West Bengal, it forms an **oxbow lake complex**.

- However, the river faces challenges such as **silt accumulation leading to reduced flow in dry seasons and flooding during the rainy season**.

- **National Waterways** like Ichamati are essential for transportation, with **India boasting 111 such inland waterways spanning a total of 14,500 kilometers**.

- The **Inland Waterways Authority of India (IWAI)** oversees their development and regulation, facilitating the movement of around **55 million tonnes of cargo annually through Inland Water Transport (IWT)**.

Read more: **Inland Waterways Authority of India**

Earthquake Strikes Northwestern Afghanistan

Recently, an **earthquake** with a magnitude of **6.3** hit **northwestern Afghanistan**, causing widespread devastation.

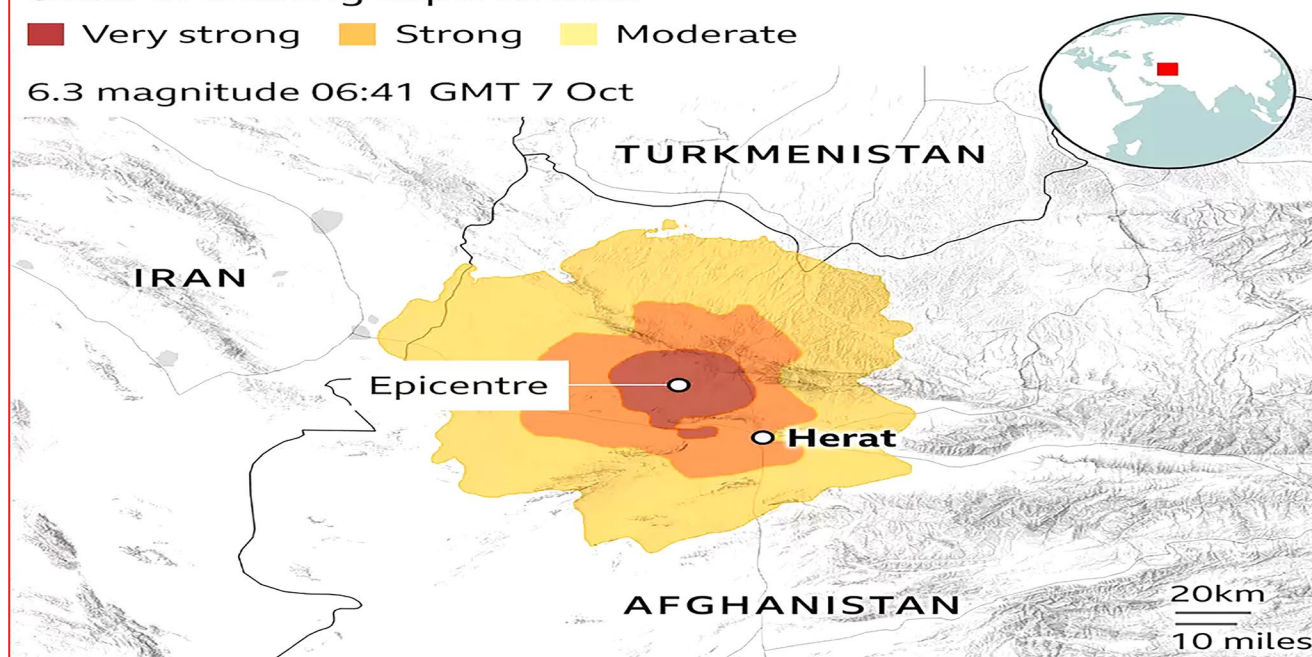
- This devastating earthquake has left residents in a state of desperation, struggling to recover and rebuild their lives in the face of ongoing adversity.
- An earthquake is a **sudden and violent shaking of the ground**. These movements can result in the release of energy in the form of **seismic waves**, which propagate through the Earth, causing the ground to shake.
 - The point on the Earth's surface directly above where the earthquake originates is called the **epicenter**, and the location within the Earth where the earthquake's energy is released is known as the **hypocenter or focus**.

Areas in Afghanistan affected by earthquake

Scale of shaking experienced:

Very strong Strong Moderate

6.3 magnitude 06:41 GMT 7 Oct



Read more: **Earthquake**

Note:

Third Intifada

The recent escalation in the **Hamas-Israel conflict** has raised **concerns about a Third Intifada**.

- Hamas is a **militant Palestinian nationalist group** that has controlled **Gaza** since 2006.
- Intifada means '**shake off**' in **Arabic** and was used to describe the Palestinian **uprising against Israeli presence in the West Bank and Gaza**.
- The **First Intifada** lasted from 1987 to 1993, and the **Second Intifada** from 2000-2005.
 - The uprisings were spearheaded by Palestinian youth who were fed up with the treatment they faced from Israeli settlers.
 - Tensions between **Israel and Palestine** have not subsided since the end of the Second Intifada.



Read more: **Israel-Palestine**

Universe's Earliest Galaxies

A recent study published in **Astrophysical Journal Letters** offered insights into the early universe's star formation and brightness.

- The **James Webb Space Telescope**, operational since 2022, has provided a remarkable glimpse into the universe's early history, revealing a collection of galaxies from cosmic dawn.
- Researchers' findings indicated that **star formation in these galaxies** occurred in **bursts rather than steadily**, distinguishing them from modern, larger galaxies like the **Milky Way**.
 - In these early galaxies, star formation bursts caused significant variations in brightness, making them **appear larger and more massive** than they may have actually been. **Astronomers usually gauge a galaxy's size based on its brightness, but this phenomenon challenges that assumption.**
 - The study suggests that the bursts of star formation led to intense **flashes of light**, making these early galaxies appear brighter.
- In smaller galaxies, bursty star formation may occur **due to the formation and rapid explosion of very large stars**, which eject gas into space, fueling subsequent bursts of star formation.
 - Larger galaxies, with stronger gravitational effects, tend to have more stable, continuous star formation.

Read more: **James Webb Space Telescope**

Operation Kachchhap

In a recent operation named "**Kachchhap**," the **Directorate of Revenue Intelligence (DRI)** has successfully rescued nearly a thousand live baby Gangetic turtles, shedding light on the ongoing battle against **illegal wildlife trade** and the **protection of these unique creatures**.

- The **Ganga river system** in India is home to 13 species of turtles, they face various threats from habitat loss, overexploitation, and pollution.
- The operation resulted in the recovery of live baby turtles of different species, such as the **Indian Tent Turtle, Indian Flapshell Turtle, Black Spotted/Pond Turtle, and Brown Roofed Turtle**, some of which are considered **vulnerable or near-threatened species according to the International Union for Conservation of Nature (IUCN) Red List** and are protected under the **Wildlife (Protection) Act, 1972**.
- DRI serves as India's premier **anti-smuggling agency**, operating under the **Central Board of Indirect Taxes & Customs**, Ministry of Finance. It is responsible for

Note:



drishti

detecting and preventing various forms of smuggling, including illicit wildlife trade.

Read more: **Indian Tent Turtle**, **Indian Flapshell Turtle**

Automatic 'Status Holder' Certificates Boost Indian Exports

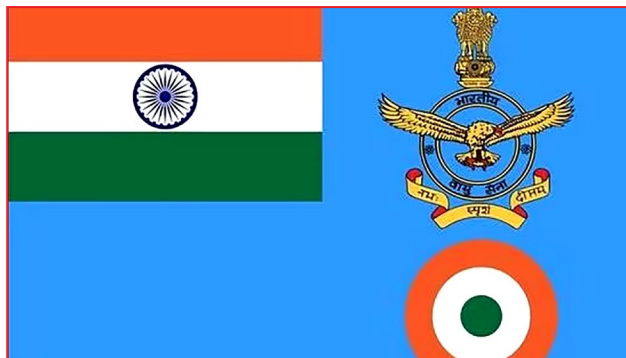
Recently, the Union Minister of Commerce & Industry has unveiled an initiative involving the **issuance of automatic 'Status Holder' certificates** under the **Foreign Trade Policy (FTP) 2023**.

- This system **eliminates the need for exporters to apply for a Status Certificate manually**, relying instead on an IT system's assessment based on available merchandise export data and risk parameters from the **Directorate General of Commercial Intelligence and Statistics (DGCI)**.
 - This shift reduces compliance burdens and fosters ease of doing business.
- This initiative, recognizing about **20,000 exporters as Status Holders**, is poised to significantly boost the **export ecosystem** and help achieve India's export target of **USD 2 Trillion by 2030**.

Read more: **Foreign Trade Policy (FTP) 2023**

Indian Air Force Day 2023

- **Indian Air Force Day** is celebrated on **8th October every year** to commemorate the establishment of the **Royal Indian Air Force on 8th October 1932**.
 - The IAF unveiled its **new ensign during the 91st IAF Day celebrations**. The new ensign prominently displays the **IAF crest in the top right corner**, along with the **national flag in the upper left canton** and the **IAF tri-colour roundel in the lower right**. This design was officially adopted in 1951.
- The theme for Indian Air Force Day 2023 is **"IAF - Airpower Beyond Boundaries."**
- The Motto of the IAF is **"Touch the sky with Glory"** has been taken from the eleventh chapter of the **Bhagavad Gita**.
- Till now, IAF has fought four conflicts with **Pakistan in 1947-1948, 1965, The Bangladesh Liberation War (1971) and 1999 (Kargil War)**, and **Operation Meghdoot**.



Read more: **Indian Air Force Day**

Sixth Basic Taste

The traditional five basic tastes, such as **sweet, sour, salty, bitter, and umami**, have been part of our understanding of taste for years. However, recent scientific research has unveiled evidence of a **sixth basic taste sensation**.

- A recent study published in **Nature Communications** reveals the existence of a sixth basic taste.
- This new taste is triggered by **ammonium chloride** and activates the **same protein receptor responsible for signaling sour taste**.
- Research identified the **protein called OTOP1** as the one responsible for detecting sour taste.
 - OTOP1 is situated within **cell membranes and forms a channel for hydrogen ions moving into the cell**.
- To validate their findings, scientists used a technique that measures electrical conductivity, simulating nerve signal conduction.
 - Normal mouse **taste cells responded to ammonium chloride** with increased action potentials. Genetically **engineered mice lacking OTOP1 had no response**. This confirmed their hypothesis that OTOP1 responds to the salt, generating an **electrical signal in taste bud cells**.

World Dyslexia Day

World Dyslexia Day, celebrated annually on 8th October, sheds light on the challenges faced by individuals with dyslexia. Also, the Dyslexia awareness week is celebrated annually from **2nd to 8th October**.

- Dyslexia is a **specific learning disorder** that primarily affects a person's ability to **read, write, and spell accurately**.

Note:

- It is characterized by difficulties in processing language-related tasks, including recognizing and decoding written words. However, **Dyslexia is not related to intelligence.**
- **Theme for 2023: Uniquely You**

World Cerebral Palsy Day

World Cerebral Palsy Day, observed globally on 6th **October**, serves as a platform to raise awareness, provide support, and advocate for greater understanding of cerebral palsy (CP) and its impact.

- **Cerebral palsy (CP)** is a group of neurological disorders that affect **movement, muscle tone, and coordination.**
 - It is caused by **damage to the developing brain**, before, during, or shortly after birth.
 - People with CP may have difficulties with **motor skills, muscle control, and balance, which can vary from mild to severe.**
- It is also recognised as a disability under the **Rights of Persons with Disabilities Act, 2016.**
- **Theme for 2023: "Together Stronger"**

Sarakka Central Tribal University Approved for Telangana

Recently, The Union cabinet approved **Sarakka Central Tribal University in Telangana** which is named after **Sammakka-Sarakka**, revered tribal figure in Telangana State.

- Sammakka-Sarakka (also called **Medaram Jatara**) is the second-largest fair in India, after the **Kumbh Mela**, celebrated by the second-largest Tribal Community of Telangana- the **Koya tribe** for four days.
- It is a tribal festival honoring the fight of a mother and daughter, **Sammakka and Saralamma**, with the reigning rulers against an unjust law.
 - Medaram is a remote place in the **Eturnagaram Wildlife Sanctuary**, a part of **Dandakaranya**, the largest surviving forest belt in the region.
 - It is **celebrated once in two years** in the month of **"Magha" (February)** on the full moon day.
- Koya tribe is the **largest adivasi tribe of Telangana** and listed as **Scheduled Tribe** in Telangana.

- The community is **spread across Telugu speaking states of Telangana and Andhra Pradesh.**
- Koyas popularly call themselves as **Dorala Sattam (Lords group)** and **Putta Dora (original lords)**. Koyas call themselves "Koitur" in their dialect, like Gonds.

Read More: Kakatiya Dynasty, Tribal Dance Festivals

Enzyme Mimetic to Degrade Pollutants in Waste-Water

Recently, Scientists at **Indian Institute of Science (IISc)** Materials Research Centre developed a **sunlight-driven enzyme mimetic for wastewater treatment.**

- The study introduced a **platinum-containing nanozyme called NanoPtA.**
- **NanoPtA** forms tape-like structures when in contact with wastewater and emits light to degrade pollutants.
- It can degrade common effluents in ten minutes under sunlight and **remains stable for up to 75 days.**
- **Nanozyme** may find applications in healthcare, particularly for neurological diseases.
 - Natural enzymes face limitations like sensitivity, complex production, and storage issues.
 - Nanozymes can overcome these challenges and mimic natural enzymes.

Read More: Sewage Treatment, Eutrophication

Using Gravity to Solve Power's Problem

Gravity-based energy storage is emerging as a solution to renewable energy intermittency and interruption, with the help of Energy Vault, which is in talks with Indian companies like NTPC, Tata Power, and ReNew Power.

- Energy Vault offers the EVx platform using **gravity and mechanical elevators** to store and release energy with 25-tonne blocks.
- It also focuses on **short-term storage, eco-friendly materials, and green hydrogen energy storage.**
 - India's push for renewable power makes energy storage crucial as its **renewable energy** growth presents challenges for grid managers.
- **Most energy storage worldwide comes from pumped hydro**, but alternative solutions are being explored.

Note:



drishti

- The Indian government is **considering hydrogen and hybrid generation models** for energy storage.
- Efforts are being made to **identify pumped hydro sites, including potential use of opencast mines.**

Read More: **Battery Storage, Lithium-Ion Batteries**

15-Minutes Cities and the Conspiracy Theories

Recently, Conspiracy theories have emerged online, falsely depicting **15-Minute Cities** as a dystopian plot to restrict people's movement and conspiracy theorists have associated 15-minute cities with totalitarian agendas and international organizations like the **World Economic Forum.**

- The term **"15-minute cities"** was coined by **Carlos Moreno in 2016** to reimagine urban planning for convenient access to essential services.
- The concept of 15-minute cities **aims to ensure that essential services are within a short walk or bike ride from one's home.**
 - **Low-traffic neighborhoods (LTNs)** are often linked to 15-minute cities and are seen by conspiracy theorists as part of a broader "war on drivers."

Read More: **Sustainable Cities, Sustainable Urban Planning.**

Government Exempts Aviation from IBC's Moratorium

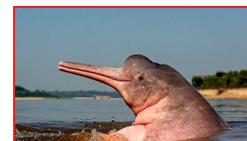
Recently, the Ministry of Corporate Affairs (MCA) exempted all transactions and agreements related to **aircraft and their engines from the moratorium (temporary suspension of an activity) under Section 14 of the Insolvency and Bankruptcy Code (IBC), 2016** providing relief to aircraft lessors (a company that leases out its fleet of aircraft to airlines).

- Aircraft lessors faced challenges when the **National Company Law Tribunal (NCLT)** barred them from repossessing planes from Go First (an Indian airline), which had filed for insolvency.
- The exemption aligns with the **Cape Town Convention (CTC)**, an international treaty offering **time-bound solutions for lessors to repossess aircraft**, thus reducing their risks, including in the case of insolvency.
 - India is also a signatory to CTC.

Read more: **IBC Reform: Distribution of Proceeds**

Amazon River Dolphins

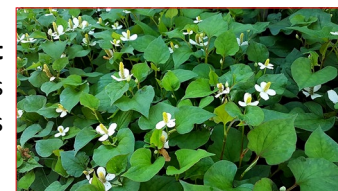
- Recently, over 100 Amazon River Dolphins were found dead in an **Amazon River tributary**, possibly due to **severe drought and heat.**
- Amazon River Dolphins are known for their distinctive pink and gray colouration. Slow reproductive cycles make their populations especially vulnerable to threats.
- Amazon River dolphins are exclusively **freshwater dolphins** and are adapted to live in the river systems of South America.
 - There are several species of Amazon River dolphins, including the **pink river dolphin (Inia geoffrensis)** and the **gray river dolphin (Sotalia fluviatilis).**
- Amazon River dolphins primarily feed on fish, using **echolocation** to locate their prey.
- The **International Union for Conservation of Nature (IUCN)** Red List Conservation status: **Endangered.**



Fish Mint: A Herb with Surprising Health Benefits

Fish mint, also known as *Houttuynia cordata* or **chameleon plant**, may not resemble fish in appearance, but its distinct **fish-like smell and taste reveal the origin of its unusual name.**

- Native to **Southeast Asia**, this herb thrives in moist soils and is resistant to flooding.
- In India's northeastern states, it is known by various names and used in salads, fish recipes, and traditional remedies.
 - In Meghalaya, it is called **ja mardoh**. In Manipur, it is called **tokning-khok**.
 - Also, traditional Chinese and Japanese medicine, as well as **Ayurveda and Siddha**, acknowledge its medicinal properties.
- Recent studies have reinforced its therapeutic potential, including its ability to alleviate **asthma symptoms, suppress fever-induced organ damage, combat infectious oral conditions etc.**



Note:

Circular Migration

Circular migration is a recurring pattern of movement where individuals migrate between their country of origin and a destination country based on the availability of employment opportunities.

- To qualify as circular migration, certain criteria must be met, including **temporary residence**, multiple entries into the destination country, freedom of movement, legal rights, **protection of migrant rights**, and a demand for temporary labor. The concept becomes more complex when multiple countries are involved.
- Circular migration is seen as a **balanced approach to migration**, addressing the **economic needs of both the destination and origin countries**. It allows for the circulation of **skills, remittances, and labor** without causing permanent demographic shifts.
- While circular migration presents opportunities, it also poses challenges, including **brain drain for origin countries** and **cultural conflicts in destination countries**.

Read more: **Migrant Issues and Safeguards**

New Study Challenges Existence of Lightning on Venus

A recent study, utilizing data from the **National Aeronautics and Space Administration (NASA)'s Parker Solar Probe**, has raised doubts about the presence of **lightning on Venus**, a topic debated among scientists for decades.

- The study published in Geophysical Review Letters, suggests that the observed "lightning" near Venus **may not be actual lightning** but rather **disturbances in the planet's weak magnetic fields**.
 - Previous scientific belief suggested constant lightning on Venus, but signals collected by various instruments over time challenge this notion.
- Another study suggests that previous observations of lightning may have been **misinterpreted meteor burn-ups in the atmosphere**.
- Venus is known for its inhospitable conditions, including extreme temperatures that makes it the **hottest planet in the solar system** and atmospheric pressure.

Read more: **Active Volcanoes on Venus, Recent Findings about Venus**

Military Nursing Service(MNS) celebrates 98th Raising Day

- The MNS recently celebrated its **98th Raising Day on 1st October, 2023**. As one of the **oldest and most distinguished all-women services in the Armed Forces**, MNS has made significant contributions to healthcare in India.
- The MNS originated during the **pre-independence colonial era** when British and Indian soldiers served in the British Army. In 1888, the **Indian Army Nursing Services (IANS)** was formally established, marking the **start of military nursing in India**.
- During **World War I and II**, officers of IANS played a crucial role in **providing medical care to wounded soldiers**.
- On October 1st October 1926, the Permanent Nursing Service was raised in the Indian Army and designated as the Indian Military Nursing Service.
 - Post-Independence, MNS was established as part of the **Armed Forces Medical Services (AFMS)**.

National Turmeric Board

Recently, the Government of India has established the **National Turmeric Board**. As India is the world's **largest producer (75% of global turmeric production), consumer, and exporter of turmeric**, this move aims to enhance the development and expansion of the turmeric industry within the country.

- The Board will consist of a **Chairperson appointed by the Central Government**, members from key government departments including the **Ministry of AYUSH, Departments of Pharmaceuticals, Agriculture & Farmers Welfare, Commerce & Industry of the Union Government**, along with rotating senior State Government representatives from three states.
 - The Board is expected to help develop and grow the spice market in India, which controls over **62% share of the turmeric world trade**.
 - The largest producing states of Turmeric are **Maharashtra, Telangana, Karnataka and Tamil Nadu**.

Note:



drishti

- With its strategic approach, it aspires to propel turmeric exports to a **staggering USD 1 Billion by 2030**, ultimately benefiting both growers and consumers.

Read more: **Spices Sector in India**

New Fish Species Discovered in Nagaland's Milak River

Recently, researchers have identified a previously unknown **fish species**, *Badis limaakumi*, in Nagaland's Milak River.

- This newfound species, named after **Limaakum**, a zoology professor at Fazl Ali College in Nagaland, distinguishes itself with a **unique opercular blotch near its opercular spine**.
 - The absence of spots on its sides and cleithrum, along with fewer lateral line scales, further sets it apart.
- Belonging to the ***Badidae* or *Badis* family**, a group of freshwater fish often found in slow or moderately flowing streams, this fish is also a culinary delight in various regions across **India, Bangladesh, Nepal, Pakistan, Thailand, and Myanmar**.
- Fish from the *Badis* family are also known as **chameleon fish** for their **ability to change colour**. This helps them blend with the surroundings when under stress.

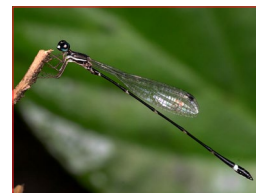


Armageddon Reedtail

Recently in Kerala's **Western Ghats**, researchers from MIT-World Peace University have found a new **damselfly species**, naming it '**Armageddon Reedtail**' (*protosticta armageddonia*).

- The species, 'Armageddon reedtail', was named to highlight the **global decline of insects due to habitat loss and climate change**, referencing the term "Ecological Armageddon."
 - It is distinguishable by its **dark brown to black body** and **vibrant greenish-blue eyes**, with half of its eight abdominal segments marked by **delicate pale blue markings**.
 - It thrives exclusively in **primary montane streams** under **dense canopy cover**.

- **Damselflies** are in the **suborder Zygoptera (pair wings)**. They are similar to dragonflies, but are smaller and have slimmer bodies.
- Damselflies are found mainly near shallow, freshwater habitats and are graceful fliers with slender bodies and long, filmy, net-veined wings.



SAMPRITI- XI Exercise 2023

The **11th edition** of the annual joint military exercise, **SAMPRITI**, commenced on 3rd October 2023, in Umroi, Meghalaya. This exercise, organized alternately by **India and Bangladesh**, highlights the strong bilateral **defence cooperation between the two countries**.

- SAMPRITI-XI is a 14-day exercise that aims to enhance interoperability between the two armies, share tactical drills, and promote best practices.
- The exercise will include a **Command Post Exercise (CPX)** and a **Field Training Exercise (FTX)**, focusing on Sub-Conventional Operations as per Chapter VII of the **United Nations Charter**, it gives the UN Security Council the power to maintain peace.
 - The CPX will emphasize **decision-making after thorough deliberations**.
 - The FTX will validate grassroots-level operations through joint tactical drills for **counter-terrorist operations**, including hostage rescue, crowd control measures, and the use of helicopters.
- The two nations also conduct **Naval Exercise Bongosagar**.



Read more: **India-Bangladesh Relations**

Note:

World Animal Day

World Animal Day is observed on **4th October**, serving as a global commemoration focused on the promotion of **animal welfare** and the protection of their rights.

- It serves as a powerful reminder of our responsibility to protect and care for the diverse species that share our planet.
 - The theme for World Animal Day 2023 is “**Big or small, we love them all,**” emphasizing the importance of compassion for animals of all sizes.
- Its origins trace back to the visionary **Heinrich Zimmermann**, who initiated the event in **1925** and saw its recognition during a **1931 Congress of the International Animal Protection Congress** in Florence, Italy.

Read more: **People Rights Vs Animal Welfare**

Saudi Arabia Cuts Oil Premium for India

Saudi Arabia, the world's second-largest **oil producer**, has reduced the **premium charged on its oil exports to India** in response to evolving global energy dynamics.

- The **Asian premium**, an additional fee imposed by the **Organization of the Petroleum Exporting Countries (OPEC)** on Asian nations beyond the market-based selling price, has been a subject of concern for India. India has consistently advocated for the elimination of this premium and has even proposed the introduction of an ‘**Asian discount**’ instead.
 - Notably, Saudi Arabia has recently reduced the premium to **USD 3.5 per barrel from around USD 10 in 2022**.
- This adjustment underscores the competitive dynamics in the oil market, where nations, including **India and China**, the **world's second and third largest crude oil importers**, have increased imports from Russia due to **substantial discounts** offered following the Ukraine conflict.

Read more: **India's Oil Dependence**

Karman Line

Boundaries in science, particularly the **Karman Line**, are gaining attention for their role in defining and distinguishing elements that could otherwise merge.

- The **Karman Line** is an imaginary boundary located at **100 km above sea level that separates Earth's atmosphere from space**.
 - Although not all scientists and spacefarers accept it, a majority of countries and space organizations recognize it as a boundary.
- It was established in the **1960s by Fédération Aéronautique Internationale (FAI)**, a record-keeping body. Any individual who crosses this line qualifies as an **astronaut**.
- The **Karman Line** was established to **regulate airspace and marks the altitude beyond which a traditional aircraft can't fly**.
 - Any aircraft flying beyond it needs a propulsion system to pull away from the earth's tug.
- It also acts as a legal reference that separates airspace that a country can claim to own from space itself, which is governed like international waters.

Pink Bollworm

The **Pink Bollworm (*Pectinophora gossypiella*)** infestation in **cotton** fields across northern India has become a severe crisis for farmers, causing widespread **damage and financial losses**.

- The infestation of the Pink Bollworm (PBW) has hit cotton fields in northern Rajasthan, Haryana, and southwestern Punjab since 2021.
- The **PBW is a destructive pest that primarily affects cotton crops**. It is native to Asia and was first reported in India in 1842.
 - PBW larvae burrow into the developing cotton bolls, affecting both the weight and quality of the harvested cotton lint.
- Genetically modified **Bt cotton seeds**, initially effective against certain pests, have **lost their efficacy in combating PBW** due to the insect's resistance.

Read more: **Cotton Production in India, Emergency Measures to Tackle Pink Bollworm**

Shri Lal Bahadur Shastri

India observed the birth anniversary of **Shri Lal Bahadur Shastri** on **2nd October**, honoring his **significant contributions and legacy**.

Note:



drishti

- He served as India's second Prime Minister from **1964 to 1966**, faced significant challenges during his tenure, including the **aftermath of the 1962 war with China, drought, food crises, and the 1965 war with Pakistan**.
 - His famous slogan "**Jai Jawan Jai Kisan**" symbolized India's determination to tackle these issues.
- Unfortunately, his prime ministership ended abruptly on **January 10, 1966, when he passed away in Tashkent, USSR (now Uzbekistan)**, while negotiating the Tashkent Agreement with Pakistan's President, Muhammad Ayub Khan.
- He was posthumously awarded the **Bharat Ratna** in 1966.

Read more: [Lal Bahadur Shastri](#)

IAF Boosts Indigenous Missile Arsenal with Astra-MK1

The **Indian Air Force (IAF)** has placed two contracts with Bharat Dynamics Limited (BDL) for the indigenous **Astra Beyond Visual Range (BVR) Air to Air Missile** and the first batch is expected to be inducted by the end of **2023**.

- Astra is fully integrated on the **SU-30MKI** and in August, 2023 it was successfully test-fired from the **Light Combat Aircraft (LCA) Tejas** off the coast of Goa.
- Development is also underway for the **more advanced Astra-MK2**, which boasts longer-range capabilities.

Read more: [Astra](#)



Note:

Key Points

Details

Summary

--

Key Points

Details

[illegible]

Summary