



DAILY CURRENT AFFAIRS

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CRIME IN INDIA REPORT 2023: NCRB

In News: The National Crime Records Bureau has released the annual edition of Crime in India Report.

About

- The data for the report is collected by the State **Crime Records Bureaux (SCRbX)** from the District Crime Records Bureaux (DCRBx) and sent to NCRB at the end of every calendar year.
- The report contains comprehensive information on:
 - cases registered and their disposal and
 - persons arrested and their disposal.

Findings of the Report

- **Increase in Crime:** There is a Increase in Crimes against women, Scheduled Castes (SC), Scheduled Tribes (ST), children, cyber crimes, and offences against the state in 2022 as compared with 2021.
- **Crime Against Women:** There was a **4% increase** in the number of cases registered under the crimes against women in 2022 as compared to 2021.
 - The majority of cases were registered under 'cruelty by husband or his relatives' (31.4%) followed by 'kidnapping and abduction of women' (19.2%), 'assault on women with intent to outrage her modesty' (18.7%), and 'rape' (7.1%).
- **Crime Against Children:** Registration of cases of crimes against children showed an increase of 8.7% over 2021.
- **Juveniles in Conflict with Law:** A total of 30,555 cases have been registered against Juveniles during 2022, depicting decline of 2.0% over 2021. The crime rate depicts a decline from 7.0 in 2021 to 6.9 in 2022.
- **Crime Against Senior Citizens:** The registered cases showed an increase of 9.3% over 2021.
- **Cyber Crime:** During 2022, 64.8% of the cyber crime cases registered were with the motive of fraud, followed by extortion at 5.5%, and sexual exploitation at 5.2%.
 - A total of 65,893 cases were registered under cyber crimes, showing an increase of 24.4% in registration over 2021.
- **Decrease in Registration of Crime:** The report shows a decline of 4.5% in the registration of cases over 2021.
 - Major decline is seen in the cases registered under 'disobedience to order duly promulgated by public servant' (Section 188 of the IPC) and under 'other IPC crimes'.
- **Chargesheeting:** The State/UT reporting highest Charge-sheeting Rate under IPC Crimes are Kerala (96.0%), Puducherry (91.3%) and West Bengal (90.6%).
- **Metropolitan Cities: 19 Metropolitan Cities:** Ahmedabad, Bengaluru, Chennai, Coimbatore, Delhi, Ghaziabad, Hyderabad, Indore, Jaipur, Kanpur, Kochi, Kolkata, Kozhikode, Lucknow, Mumbai, Nagpur, Patna, Pune and Surat.

- Cities reporting highest Charge-sheeting Rate under IPC Crimes are Kochi (95.9%), Patna (89.9%) and Kozhikode (89.4%)
- Maximum theft cases were reported in Delhi followed by Mumbai, Jaipur and Bengaluru.
- Delhi is the most unsafe metropolitan city for women in the country, recording on an average three rape cases daily.

About National Crime Records Bureau (NCRB)

- NCRB is responsible for **collecting and analyzing crime data** as well as maintaining national databases related to crime and criminals.
- It was established in **1986** based on the recommendations of the **National Police Commission (1977-1981) and the MHA's Task Force (1985)**.
- It operates under the **Ministry of Home Affairs**.
- Before the establishment of the NCRB, crime data in India was collected and maintained by **individual states**, leading to variations in reporting formats and standards.
- The NCRB acts as a **repository of information on crime and criminals** so that law enforcement agencies and policymakers can use this data for better planning and decision-making.

Measures Taken by Government of India to Curb Crime

- **Criminal Law (Amendment) Act, 2018:** It was enacted to prescribe even more stringent penal provisions including death penalty for rape of a girl below the age of 12 years.
 - The Act also mandates completion of investigation and trials within 2 months each.
- **National Crime Records Bureau (NCRB):** The NCRB plays a vital role in collecting, analyzing, and publishing crime data, providing insights for policy formulation and law enforcement strategies.
- **Modernization of Police Forces:** Implementation of various schemes and programs to modernize police forces with better infrastructure, equipment, and training. Emphasis on the use of technology for crime prevention, investigation, and surveillance.
- **Specialized Units:** Establishment of specialized units within police forces to address specific types of crimes, such as cybercrime units, anti-trafficking units, and specialized cells for crimes against women and children.
- **National Database on Sexual Offenders (NDSO):** Introduction of the NDSO in 2018 to maintain a comprehensive database of individuals convicted of sexual offenses, aiding in tracking and monitoring sexual offenders.
- **Strengthening Judiciary:** Initiatives to expedite the legal process and reduce the backlog of cases, ensuring swift justice.

- **Smart Policing Initiatives:** Use of technology, including surveillance cameras, facial recognition, and data analytics, to enhance policing and crime detection capabilities.
- **One Stop Centre (OSC) scheme** is being implemented across the country since 2015 which is exclusively designed to provide integrated services such as medical aid, police assistance, legal counselling/ court case management, psycho-social counselling and temporary shelter to women affected by violence under one roof.
- **Emergency Response Support System** provides a pan-India, single, internationally recognized number (112) based system for all emergencies, with computer aided dispatch of field resources to the location of distress.
- **The Bharatiya Nyaya Sanhita, 2023:** The Bill repeals the Indian Penal Code, 1860 (IPC). Changes include introduction of offences of organised crime and terrorism, enhancement in penalties for certain existing offences, and introduction of community service as a punishment for certain petty offences.

Source: [TH](#)

RE-CRIMINALISING ADULTERY

News: The Parliamentary Standing Committee on Home Affairs, recommended the amendment of the proposed **Bharatiya Nyaya Sanhita Bill, 2023** to criminalize adultery on gender-neutral lines.

Background

- In **Joseph Shine vs Union Of India, 2018**, the Supreme Court struck down Section 497 of the IPC on grounds that included discrimination.
- However, it clarified that adultery would continue to remain a civil wrong and a valid ground for divorce.

What is adultery?

- Adultery is a **voluntary sexual relationship** between a married person and someone who is not their spouse.
- **The Indian Penal Code, 1860** contained Section 497, defined adultery as a criminal offense. This law made it a crime for a man to have sexual intercourse with the wife of another man without that man's consent.
- The law treated women as the property of their husbands and did not provide for any punishment for women who committed adultery.

Arguments in favor of criminalisation of adultery

- **Parliamentary Committee view:** Highlighting the need to protect the institution of marriage, the Committee suggested that adultery be reinstated as a criminal offense.
- **Malimath Committee:** In **2003**, the Committee on Reforms of the Criminal Justice System, proposed that adultery be retained as an offense but on gender-neutral terms.

Arguments against criminalisation of adultery

- **Moral wrong:** Adultery, although a moral wrong for the spouse and the family, however, does not result in any wrong against the society at large in order to bring it within the ambit of criminal law.
- **Discrimination towards unmarried couples:** Even after making the law Gender neutral it differentiates between a married and an unmarried couple as unless relationships are recognised as marriage, people cannot be prosecuted.
- **In 1971**, some of the members of the **Law Commission of India** raised concerns and were inclined to repeal section 497.

Way Ahead

- The supreme court in its judgment held that Section 497 was violative of **Articles 14, 15, and 21** of the Constitution, which protect the fundamental **Right to equality, Right to non-discrimination, and Right to life** respectively.
- The Supreme court said that if it is treated as a crime, there would be immense **intrusion into the extreme privacy** of the matrimonial sphere. It is better to be left as a ground for divorce.

Source: [TH](#)

RBI'S MONETARY POLICY COMMITTEE (MPC)

In News: The Monetary Policy Committee (MPC) of the Reserve Bank **may keep the repo rate unchanged at 6.5 percent.**

About

- The central bank is also expected to retain the stance of the monetary policy as **'withdrawal of accommodation'** meaning it **will be focused on curbing money supply in the economy.**
 - With **better-than-expected second-quarter gross domestic product (GDP) print** at 7.6 per cent, the RBI may revise upwards its FY '24 growth estimate.

Do you know?

- 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.

Why will RBI keep the Repo rate unchanged?

- The reason is that the **inflation will start inching up because food inflation is going to increase.**
- The **core inflation is around 4 per cent**, and therefore, there is no reason for the RBI to increase the rate.
- Though **headline inflation** has moderated, **it remains vulnerable to recurring and overlapping food price shocks** coming from global factors and adverse weather events.

- As the RBI is expected to keep the policy rate unchanged, **all external benchmark lending rates linked to the repo rate will not rise.**
 - It will provide some relief to borrowers as their equated monthly installments (EMIs) will not increase.

Do you know?

- The **headline inflation** figure includes inflation in a basket of goods that includes commodities like **food and energy**.
- It is different from **core inflation, which excludes food and energy prices** while calculating inflation because **their prices are volatile**.

Monetary Policy in India:

- Under the **Reserve Bank of India, Act, 1934**, RBI is entrusted with the **responsibility of conducting monetary policy in India**.
- **Objective:** To maintain price stability while keeping in mind the objective of growth.
- **The Monetary Policy Framework:** In May 2016, the RBI Act, 1934 was amended to provide a **statutory basis for the implementation of the flexible inflation targeting framework**.
 - The operating framework of monetary policy aims at **aligning the operating target – the weighted average call rate (WACR) – with the policy repo rate**.
 - It is through **proactive liquidity management to facilitate transmission of repo rate changes** through the entire financial system, which, in turn, influences aggregate demand – a key determinant of inflation and growth.
- **Inflation Target:** The **Central Government, in consultation with the RBI, determines the inflation target** in terms of the **Consumer Price Index (CPI) once in five years**.
 - Accordingly, the Central Government notified **4 percent CPI inflation as the target with the upper tolerance limit of 6 percent and the lower tolerance limit of 2 percent**.
 - The same inflation target has been retained for the 5-year period – **April 1, 2021 to March 31, 2026**.

Monetary Policy Committee (MPC):

- **Section 45ZB of the RBI Act** provides for the constitution of a **six-member Monetary Policy Committee (MPC)**.
- **Mandate:** to determine the policy rate required to achieve the inflation target.
- **Members:**
 1. Governor of the Reserve Bank of India: ex officio Chairperson;

2. Deputy Governor of the Reserve Bank of India: ex officio Member, in charge of Monetary Policy;

3. One officer of the Reserve Bank of India to be nominated by the Central Board—Member, ex officio;

- Remaining **three members**, who are experts in the field, are **nominated by the Central Government**.
- **Term:** Except Governor and Deputy Governor of RBI (who are ex officio members), all other members hold office for a **period of four years or until further orders**.
- The MPC is required to **meet at least four times in a year**. The **quorum for the meeting of the MPC is four members**.
 - **Each member of the MPC has one vote**, and in the event of an equality of votes, the **Governor has a second or casting vote**.

Instruments of Monetary Policy

- **Repo Rate:** The interest rate at which the Reserve Bank **provides liquidity** under the liquidity adjustment facility (LAF) against the collateral of government and other approved securities.
- **Reverse Repo Rate:** The interest rate at which the Reserve Bank **absorbs liquidity from banks against the collateral** of eligible government securities under the LAF.
- **Standing Deposit Facility (SDF) Rate:** The rate at which the Reserve Bank accepts non collateralized deposits, on an overnight basis.
 - The SDF rate is placed at **25 basis points below the policy repo rate**.
 - With introduction of SDF in April 2022, the **SDF rate replaced the fixed reverse repo rate as the floor of the liquidity corridor**.

Do you know?

- The LAF corridor has the **marginal standing facility (MSF) rate as its ceiling** and the **standing deposit facility (SDF) rate as the floor**, with the policy repo rate in the middle of the corridor.
 - It was introduced in 2000 following the recommendation of **Narasimham Committee Report on Banking Reforms**.
- **Marginal Standing Facility (MSF) Rate:** The penal rate at which **banks can borrow, on an overnight basis**, from the Reserve Bank by **dipping into their Statutory Liquidity Ratio (SLR) portfolio** up to a predefined limit (**2 percent**).
 - This provides a safety valve against unanticipated liquidity shocks to the banking system.
 - The **MSF rate is placed at 25 basis points above the policy repo rate**.

- **Liquidity Adjustment Facility (LAF):** The LAF refers to the **Reserve Bank's operations through which it injects/absorbs liquidity** into/from the banking system.
 - It consists of **overnight as well as term repo/reverse repos** (fixed as well as variable rates), SDF and MSF.
- **Cash Reserve Ratio (CRR):** The average daily balance that a bank is required to maintain with the Reserve Bank as a percent of its net demand and time liabilities (NDTL).
- **Statutory Liquidity Ratio (SLR):** Every bank shall maintain in India assets, typically in unencumbered government securities, cash and gold.
- **Open Market Operations (OMOs):** These include outright purchase/sale of government securities by the Reserve Bank for **injection/absorption of durable liquidity** in the banking system.

Source: [IE](#)

DISCOVERY OF SIX NEW EXOPLANETS

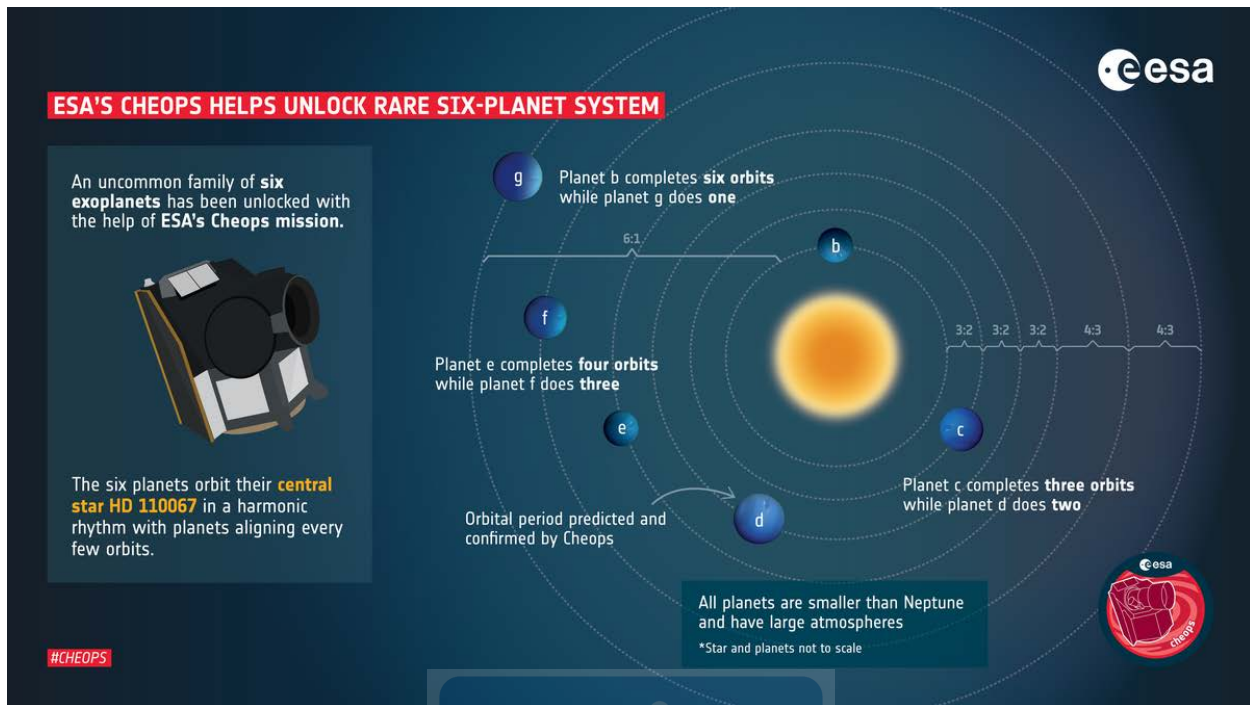
News: Six exoplanets orbiting around a nearby bright star HD 110067 in the Coma Berenices constellation have been discovered.

What is an exoplanet?

- **An exoplanet** is any planet beyond our solar system.
- Most orbit other stars, but free-floating exoplanets, called **rogue planets**, orbit the galactic center and are untethered to any star.

About the Discovery

- **HD 110067** is a bright star in the Coma Berenices constellation (around 100 light-years away), which is visible from Earth's Northern Hemisphere.
- Observations of **HD 110067** made by **NASA's Transiting Exoplanet Survey Satellite (TESS)** in 2020 and 2022 revealed several dips in the star's brightness, and with additional observations from the '**CHaracterising ExOPlanets Satellite (CHEOPS)**' the signals were interpreted as six planets passing in front of the star.



Physical Characteristics of Exoplanets

- The newly discovered exoplanets have radii between that of **Earth and Neptune**. **The mass and density of the planets are low.**
- The reason for low densities could be due to **large, hydrogen-rich atmospheres** on the exoplanets.
- All six exoplanets are in **resonant orbits**, in which the planets exert regular forces on each other as they orbit. This feature suggests that the system remains practically unchanged since its birth, at least four billion years ago.

TESS (Transiting Exoplanet Survey Satellite)

- TESS is a **Space Telescope** launched by **NASA in 2018**.
- **The mission aim** is to detect small planets with bright host stars in the solar neighborhood, so that detailed characterizations of the planets and their atmospheres can be performed.

How does TESS find planets?

- TESS detects exoplanets by looking for **periodic dips** in stars' brightness as planets cross in front of them along our sightline.
- **The larger the planet, the further the drop in brightness** during the transit.
- How long it takes a planet to pass in front of the star and come back tells us the shape of its orbit.

Source: **TH**

'GLOBAL DROUGHT SNAPSHOT' BY UNCCD

Syllabus: GS3/Climate Change and Disaster

Context

- According to the '**Global Drought Snapshot**' launched by the UNCCD at the outset of **COP28 climate talks in the UAE**, drought causes more economic loss and affects more sectors of societies.

About the United Nations Convention to Combat Desertification (UNCCD)

- It is the **sole legally binding international agreement** linking environment and development to sustainable land management.
- UNCCD is one of three Conventions **originated at the 1992 Earth Summit** in Rio de Janeiro, and adopted in 1994.
 - The other two address Climate Change (UNFCCC) and Biodiversity (UN CBD).
- The Convention addresses ***specifically the arid, semi-arid, and dry sub-humid areas***, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.
- Parties to the Convention meet in **Conferences of the Parties (COPs) every two years**, as well as in **technical meetings throughout the year**, to advance the aims and ambitions of the Convention and achieve progress in its implementation.

Key highlights of the report

Social Dimensions: 85% of people affected by droughts live in low- or middle-income countries.

- 23 million people deemed severely food insecure across the Horn of Africa in December 2022.
- 170 million people are expected to experience extreme drought if average global temperatures rise 3°C above pre-industrial levels, 50 million more than expected if warming is limited to 1.5°C.

Agriculture and Forests: About 70% cereal crops were damaged by drought in the Mediterranean between 2016 to 2018.

- About 33% loss of grazing land in South Africa due to drought. Africa's drought-related economic losses in the past 50 years at \$70 billion.
- Five consecutive rainfall season failures in the **Horn of Africa (Ethiopia, Kenya and Somalia)** caused the region's worst drought in 40 years, contributing to reduced agricultural productivity, food insecurity and high food prices.

Water Conditions: 75% reduction of cargo capacity of some vessels on the Rhine due to low river levels in 2022, leading to severe delays to shipping arrivals and departures.

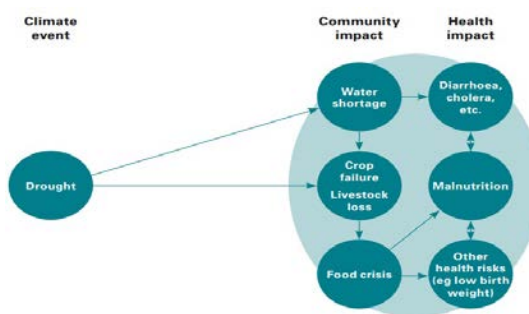
- 5 million people in southern China are affected by record-low water levels in the Yangtze River due to drought and prolonged heat.

Remedies highlighted in the report

- **Global Drought Snapshot** highlighted several findings as **critical aspects of building global drought resilience** and it includes land restoration, sustainable land management and nature positive agricultural practices etc.
- **Adopting nature-positive farming techniques:** It includes drought-resistant crops, efficient irrigation methods, no-till and other soil conservation practices, that the farmers can reduce the impact of drought on their crops and incomes.
 - Up to 25% CO2 emissions could be offset by nature-based solutions including land restoration.
- **Efficient water management:** It includes investing in sustainable water supply systems, conservation measures and the promotion of water-efficient technologies.
 - 20 to 50% potential reduction in water waste if conventional sprinkler systems were replaced by micro-irrigation (drip irrigation), which delivers water directly to plant roots.
- **Disaster preparedness and Early warning systems:** Investing in meteorological monitoring, data collection and risk assessment tools can help respond quickly to drought emergencies and minimise impacts.
 - Building global drought resilience requires international cooperation, knowledge sharing as well as environmental and social justice.

About Drought:

- Drought is a prolonged dry period in the natural climate cycle that can occur anywhere in the world.
- It is a slow-onset disaster characterised by the lack of precipitation, resulting in a water shortage.
- Drought can have a serious impact on health, agriculture, economies, energy and the environment.



Data related to drought:

- An estimated 55 million people globally are affected by droughts every year, and they are the most serious hazard to livestock and crops in nearly every part of the world.
- Water scarcity impacts 40% of the world's population, and as many as 700 million people are at-risk of being displaced as a result of drought by 2030.

Types of drought:

- **Meteorological:** It happens when dry weather patterns dominate an area.
- **Hydrological:** It occurs when low water supply becomes evident, especially in streams, reservoirs, and groundwater levels, usually after many months of meteorological drought.
 - Meteorological drought can begin and end rapidly, while hydrological drought takes much longer to develop and then recover.
- **Agricultural:** It happens when crops become affected.
- **Socio-economic:** It relates the supply and demand of various commodities to drought.

Way Forward:

- The report stressed that there is no alternative to move forward in a way that respects the planet's boundaries and the interdependencies of all forms of life. There is a need to reach binding global agreements for proactive measures that are to be taken by nations to curtail the spells of drought.

Source: TOI

FACTS IN NEWS

Dr. Rajendra Prasad

Syllabus: GS1/Modern and Post Indian History

Context

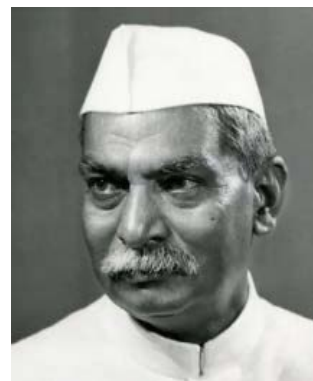
- The President and the Prime Minister of India paid tributes to Dr. Rajendra Prasad, the first President of India on his birth anniversary.

About Dr. Rajendra Prasad:

- He was an Indian independence activist, lawyer, scholar and subsequently, the **first President of India**, in office from 1950 to 1962.

Role in freedom movement

- He was **instrumental** in the **formation of the Bihari Students Conference in 1906**.
- He was a close associate of **Mahatma Gandhi** and he **formally joined the Indian National Congress** in the year **1911**, when the annual session was again held in Calcutta.
 - He was known for his role in the **Champaran satyagraha**.
 - He was imprisoned by British authorities during the Salt Satyagraha of 1931 and the Quit India movement of 1942.
- He was elected as the **President of the Indian National Congress (INC)** during the **Bombay session in October 1934**.



- He again became the President of INC when Subhash Chandra Bose resigned in 1939.
- He served as the **President of the Constituent Assembly** that drafted the Constitution of India.
 - He also chaired the Constituent Assembly's committee on food and agriculture.
- **Legacy:** His legacy as a freedom fighter, statesman, and India's first President continues to inspire.
 - His humility, dedication, and profound commitment to the principles of democracy remain the touchstone of public service in India.
- **Noted books:** '*Satyagraha at Champaran*' (1922), '*India Divided*' (1946), his autobiography '*Atmakatha*' (1946), '*Mahatma Gandhi and Bihar, Some Reminiscences*' (1949), and '*Bapu ke Kadmon Mein*' (1954)
- **Awards and Recognition:** In 1962, he was subsequently awarded the **Bharat Ratna**, the nation's highest civilian award.

Source: PIB

Hauz-i-Shamsi

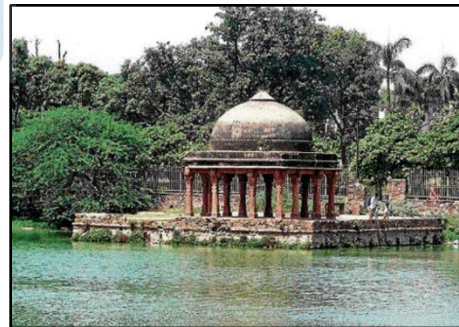
Syllabus: GS1/ Art and Culture

News

- Recently, the Ministry of Jal Shakti organised a '**Jal Itihas Utsav**' in **Hauz-i-Shamsi** to raise public consciousness about safeguarding **water heritage sites**.

About

- Situated in **Mehrauli** near the Jahaz Mahal, Hauz-i-Shamsi, also known as the **Shamsi Talab**, is a **water reservoir** built between 1211- 1236 AD by **Sultan Iltutmish**.
- **Sultan Firoz Shah Tughlaq** got it repaired later on and refilled it with water.
- The reservoir also finds mentions in the works of famed traveller **Ibn Batuta** who had described the Hauz-i-Shamsi as a **rectangular-shaped reservoir** that was spread across an area of one mile by two miles.



Source: IE

World Malaria Report 2023

Syllabus: GS 2/Health

In News

- World Malaria Report 2023 recently published by the World Health Organization (WHO).
 - It delves into the nexus between **climate change and malaria**.

Key Highlights

- **Global scenario:** In 2022, there were estimated **249 million cases globally**, exceeding the pre-pandemic level of **233 million in 2019 by 16 million cases**.
 - **Pakistan** saw the **largest increase**, with about 2.6 million cases in 2022 compared to 500 000 in 2021.
 - Significant increases were also observed in Ethiopia, Nigeria, Papua New Guinea and Uganda.
- **Scenario in India:** India accounted for **1.4% of total malaria cases** in the world.
 - **India saw a 30% decline** in malaria cases and **34% decline in deaths** in 2022 as compared to the previous year
 - **key to India's success:** Good preventive practices, use of effective tools to keep the mosquito population in check, use of point of care tests for quick diagnosis, and good management of the malaria cases]
 - There has been a lot of investment in insecticide mosquito nets, antimalarial drugs, and point of care tests to quickly detect the disease.
- **Challenges:** Disruptions caused by COVID-19, threats such as drug and insecticide resistance, humanitarian crises, resource constraints, climate change impacts and delays in programme implementation particularly in countries with a high burden of the disease.
- **Suggestions:** To achieve the malaria elimination target of 2030, there has to be emphasis on **strengthening of surveillance** as well as tailoring of malaria interventions at sub-national level which should be data driven.
 - Planning for the disease should also take into account such extreme weather events as better planning for them can reduce the incidence of malaria.

Malaria

- Caused by **parasites (Plasmodium vivax, Plasmodium falciparum, Plasmodium malariae and Plasmodium ovale)** that are transmitted through the bite of infected **female Anopheles mosquitoes**.
- In the human body, parasites initially multiply in liver cells and then attack the Red Blood Cells (RBCs).
- 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.
- It is predominantly found in the tropical and subtropical areas of Africa, South America and Asia.
- Malaria symptoms include high fever, chills, headache and other flu-like symptoms.

INTERNATIONAL MARITIME ORGANISATION (IMO)

Context: Recently, India has been **re-elected** to the International Maritime Organisation Council.

India's re-election falls under the Category of 10 states with "the largest interest in international seaborne trade", alongside Australia, Brazil, Canada, France, Germany, the Netherlands, Spain, Sweden, and the United Arab Emirates (UAE).

About International Maritime Organization (IMO)

- It is a specialized agency of the United Nations.
- **Mandate:** Regulates and standardizes global shipping to ensure safety, security, and environmental protection.
- **Structure:**
 - All 175 member states and three associate members are entitled to attend the Assembly, which is the IMO's highest governing body.
 - **Executive Organ:** IMO Council which is responsible to supervise the work of the organization.
- **Conventions:** Enacts international conventions, such as **SOLAS** (Safety of Life at Sea) and **MARPOL** (International Convention for the Prevention of Pollution from Ships).
- **Major Functions:**
 - **Piracy and Security:** Addresses issues of piracy and maritime security to safeguard international waters.
 - **Technical Assistance:** Provides technical assistance to developing countries for capacity-building in maritime matters.
 - **Environmental Issues:** Addresses environmental issues related to shipping, including pollution prevention.

Source: [PIB](#)

ANTHROBOTS

Context: Recently, researchers have developed miniature robots called anthrobots using human cells.

About

- Constructed from human tracheal cells, these bio-robots exhibit self-assembly capabilities.
 - **Tracheal Cells** are derived from the lining of the bronchi/trachea, which are tubes that convey air to the lungs.
- Capable of movement and healing neurons in a laboratory setting.
- Measure between the width of a human hair and the tip of a sharpened pencil.

Anthrobots vs Xenobots

Features	Xenobots	Anthrobots
Source	Embryonic stem cells of frogs	Human tracheal cells
Self-organization	Capable of self-organizing cells for tasks	Spontaneous fusion to form superbots
Applications	Drug delivery, environmental cleanup, medical procedures	Regenerative medicine, wound healing, disease treatment

Source: [NDTV](#)

PHASE-II OF LEADERSHIP GROUP (LEADIT 2.0)

Syllabus: **GS3/Environment & Conservation**

In News

- Prime Minister Narendra Modi together with Prime Minister of Sweden, co-launched the **Phase-II of the Leadership Group** for Industry Transition (LeadIT 2.0) for the period **2024-26**, at **COP-28 in Dubai**.

About

- **Established:** The Leadership Group for Industry Transition (LeadIT) was launched by the governments of Sweden and India at the **UN Climate Action Summit in 2019** and is supported by the **World Economic Forum**.
- **Aim:** LeadIT members subscribe to the notion that energy-intensive industry can and must progress on low-carbon pathways, aiming to achieve net-zero carbon emissions.
 - It gathers countries and companies that are committed to action to achieve the Paris Agreement.
- **LeadIT 2.0 will focus on the following:**
 - Inclusive & Just Industry Transition,
 - Co-development & transfer of low-carbon technology,
 - Financial support to emerging economies for Industry Transition.
- India and Sweden also launched the **Industry Transition Platform**, which will connect the governments, industries, technology providers, researchers and think tanks of the two countries.

Source: [PIB](#)

HYDROGEN FOR HERITAGE SCHEME

Syllabus: GS3/Environment & Conservation

In News

- India proposes to invite expression of interest from global players to **manufacture hydrogen-powered trains** in the country based on **technology being developed indigenously**.

About

- **Initiation:** Finance Minister Nirmala Sitharaman in her Budget speech 2023, announced the 'Hydrogen for Heritage' scheme, a plan to operate **hydrogen-powered trains** on select heritage and hilly routes that are environmentally sensitive.
- **Technology:** Indian Railways is developing a prototype of a train that will be powered by hydrogen fuel cells—making for a more environment-friendly locomotive than traditional diesel-powered ones.
 - India's plan to develop the technology involves **retrofitment of hydrogen fuel cells on diesel electric multiple unit (DEMU) rakes**. This prototype is expected to run on the Jind-Sonipat section in Haryana initially.
- **Countries Having the Technology:** Currently, **only Germany commercially operates hydrogen-powered trains**, while the US, the UK, France, and Japan are in the testing phase.
- **Initial Proposal:** Indian Railways has proposed to run 35 hydrogen trains at an estimated cost of Rs 80 crore per train, with ground infrastructure costing Rs70 crore per route.
 - Thirty-five train-set rakes (with six coaches each) have been sanctioned for the ongoing financial year for eight sections—Matheran Hill Railway, Darjeeling Himalayan Railway, Kalka-Shimla Railway, Kangra Valley, Bilmora Waghai, Patalpani Kalakund, Nilgiri Mountain Railways, and Marwar-Goram Ghat.

Source: TM

WHITE LUNG SYNDROME

In News: White lung syndrome is emerging as a new health concern among children.

White lung syndrome

- It's a respiratory infection caused by **multiple microorganisms** (influenza, mycoplasma etc) leading to development of pneumonia.
 - The term was coined to describe a mysterious respiratory illness that began to be seen among patients in China primarily with pneumonia-like symptoms.
 - In China, it was found to be due to a **combination of various respiratory illnesses**, including **influenza**, SARS-CoV-2 (Covid-19), Respiratory syncytial (RSV), and mycoplasma pneumoniae.
- **Symptoms:** White patches in the lung are formed all over the organ .

- Patient start having infection, fever, cough, other symptoms, sore throat, watery eye skin rash or symptoms like diarrhoea,
- **Treatment:** The treatment is mainly focused on addressing the symptoms of pneumonia.

Source: [HT](#)

JELLYFISH

In News: Scientists have recently confirmed 'mysterious' jellyfish named **Santjordia pagesi** with 240 tentacles off Japan's coast.

It has distinctive features like a bright red, cross-shaped stomach.

About Jellyfish

- It is a **planktonic marine member** of the class Scyphozoa (phylum Cnidaria), a group of invertebrate animals.
- Jellyfish can be divided into two types, those that are **free-swimming medusae** and those that are **sessile** (animals that are attached to seaweed and other objects by a stalk).
- Most feed on copepods, fish larvae, and other small animals that they catch in their tentacles, which have stinging cells (nematocysts).
- Most of them live for only a few weeks, but some are known to survive a year or longer.
- They can be **bioluminescent**, too, which means they produce their own light.

Source: [Wion](#)

