

GS CONNECT

It gives us immense pleasure to present an innovative approach to master current affairs. Current is a passing wind and diverse issues happen at the same time. It is to an extent chaotic. Newspapers, magazines and various other sources report the chaos per se. With our experience of current affairs we have tried to give "the current" a medium to travel. It is the syllabus of the UPSC with their components that are the medium through which the "Current is Passed" to the readers. Ever since the new syllabus of the UPSC came into existence, current has been gaining significance both at prelims as well as mains examination. This book is meant to cover current affairs and related questions arising from those events. We have not only covered the current events for their factual contents but also presented it in such a way that any question asked from that topic gets covered. Moreover, topics are also "peppered" with the relevant facts/key concepts that are related to the theme. We have also given questions for practice both, subjective and objective, so that candidates are oriented to the examination mode. It is a collection covering myriad source yet in a manageable size. To use this book we recommend you to master the components of general studies (GS) syllabus as broken into rows and columns (provided in the beginning after preface). Each cell comprising of the portion of GS becomes the connect for the current and every news subsequently covered guides the reader to the address of the syllabus. It is logical to expect that same issue may be connected to more than one topic of the syllabus. Further, the news also has some additional vistas opened for the readers by adding a box with a title **"PEPPER IT WITH"** where we expect the students to build further around the theme.

We are also trying to reach the remotest part of the country with our spirit and zeal of "Mains Answer Writing", which has been admired by students, CSE rankholders and other scholars. Continuing in line with the effort, we have started with programs like 7 Question (7Q) Challenge, Shell Points, Stock Points, Content Enrichment Booklet etc.

When it comes to evaluation, we are altogether at a different level. We are also reaching every nook and corner with this expertise for the aspirants of CSE. Now you can write a Mains Answer and get it evaluated from our Expert Team and can get Feedback. **Drop a mail at evaluation@ksgindia.com for registering yourself in our race to perfection.** Don't wait, it's your golden chance to crack this exam and fulfill your passionate dream.

Team KSG

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

Forum Shopping

News Excerpt

The Chief Justice of India (CJI) has recently expressed strong disapproval of Forum Shopping when a litigant mentioned their case for a hearing before the CJI, despite having already mentioned the same case before another judge the previous day.

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Understanding Forum Shopping

- Forum shopping is the deliberate practice of selecting a specific court for a legal case with the intention of obtaining a favorable outcome.
- Litigants and lawyers often consider forum shopping as part of their litigation strategy, aiming to gain advantages in their case.
- For instance, opting for a higher court like the Supreme Court (SC) can attract more attention to their case. However, manipulating the system or avoiding a particular judge is viewed as unfair.
- "Bench hunting" refers to petitioners managing to have their cases heard by a specific judge or bench to ensure a favorable judgment.

Advantages of Forum Shopping:

- Allows plaintiffs to seek justice and compensation in a court that may be more sympathetic to their claims or interests.
- Encourages competition and innovation among courts and judges, leading to improvements in efficiency and the quality of service.

Disadvantages of Forum Shopping:

- Criticized by judges due to the potential for injustice towards the opposing party and an imbalance in the workload of different courts.
- Overburdening of some courts while others remain underutilized, leading to interference with the judicial process.
- Undermines the authority and legitimacy of courts and judges by creating perceptions of bias or favoritism.
- Increases the costs and complexity of litigation by generating conflicts of laws and multiple proceedings.

Discouraging Forum Shopping:

- Even in the United States and the United Kingdom, courts discourage or prohibit forum shopping.
- In common law countries, the principle of "forum non-conveniens" is utilized to prevent forum shopping.
- Common law countries, including the US, Canada, and the Commonwealth nations, have legal systems primarily based on common law principles.
- The principle of forum non-conveniens enables a court to decline jurisdiction over a case if another court is more appropriate for its adjudication.
- This principle ensures fairness and allocates cases to the proper judicial authorities.

Court Observation on Forum Shopping

Various observation made by Supreme Court as follows:

- **In Dr. Khair-Un-Nisa and Ors vs. UT of Jammu and Kashmir and Ors 2023:**
 - The Jammu, Kashmir, and Ladakh High Court imposed costs of one lakh rupees on the petitioners for engaging in forum shopping.
 - The petitioners filed multiple petitions before different wings of the court, despite having the same cause of action.
- **Vijay Kumar Ghai vs. State of W.B. 2022:**
 - The Supreme Court described forum shopping as a disreputable practice by the courts.
 - The court emphasized that forum shopping has no sanction and paramountcy in law.
- **Dhanwantri Institute of Medical Science vs. The State of Rajasthan 2022:**
 - The Rajasthan High Court upheld an order that imposed costs of 10 lakh rupees on a party for indulging in forum shopping.
- **Union of India & Ors. vs. Cipla Ltd. 2017:**
 - The Supreme Court introduced a "functional test" for assessing forum shopping.
 - The functional test is used to determine whether a litigant is genuinely seeking justice or engaging in manipulative tactics through forum shopping.
- **Rosmerta HSRP Ventures Pvt. Ltd. vs. Govt. of NCT of Delhi & Anr 2017:**

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- The Delhi High Court imposed costs on a private company for engaging in forum hunting in an arbitration matter.
- The court found that the company was deliberately seeking a specific forum for its advantage.
- **Kamini Jaiswal vs. Union of India 2017:**
 - The Supreme Court acknowledged that unscrupulous elements are always seeking a court or forum of their choice.
 - However, the law does not permit them to engage in such practices.
- **Chetak Construction Ltd. vs. Om Prakash 1988:**
 - The Supreme Court emphasized that litigants should not have the freedom to choose a court for their convenience.
 - Any attempt at forum shopping should be strongly discouraged, according to the court.

Impact of Forum Shopping on Justice and the Judicial Process

- ✓ Forum shopping has the potential to undermine the principle of natural justice, which necessitates a fair hearing before an impartial tribunal.
- ✓ Engaging in forum shopping can disregard the principle of comity, which emphasizes that courts should respect and defer to each other's decisions on matters of shared importance.
- ✓ The practice of forum shopping can impede the principle of finality, which dictates that litigation should reach a conclusion and not be endlessly prolonged.

Legislature Productivity

News Excerpt

The 17th Lok Sabha, in its final year, has had 230 sitting days. Among the Lok Sabhas that completed the full five-year term, the 16th Lok Sabha had the lowest number of sitting days (331). With only one year remaining and an average of 58 sitting days per year, it is unlikely that the 17th Lok Sabha will exceed 331 days, potentially making it the shortest full-term Lok Sabha since 1952.

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Performance analysis of 17th Lok Sabha

- **Limited Legislative Activity and Budget Discussion:** The Budget session held from January to April 2023 witnessed minimal legislative activity and disruptions, resulting in limited discussions on the Budget.
- **Session Functioning:** The Lok Sabha functioned for 33% of its scheduled time (46 hours), while the Rajya Sabha functioned for 24% (32 hours) during this session. This session marks the sixth shortest budget session since 1952.
- **Budget Discussion in Lok Sabha:** In the Lok Sabha, 18 hours were dedicated to financial business, with 16 hours spent on the general discussion of the budget.
- **Past Eleven Sessions:**
 - Between the 2019 and 2023 Budget Sessions, a total of 150 Bills were introduced and 131 Bills were passed.
 - The number of Bills introduced and passed has gradually declined over the sessions.
 - In the latest four consecutive sessions, fewer than 10 Bills were introduced or passed.
- **House Productivity in Recent Years:**
 - In 2022, the Lok Sabha functioned for 177 hours, while the Rajya Sabha functioned for 127.6 hours.
 - In 2021, the Lok Sabha had a productivity of 131.8 hours, while the Rajya Sabha had 104 hours.
 - Productivity hours in 2020 were 111.2 for the Lok Sabha and 93.8 for the Rajya Sabha.
- **Budget Session of 2023:** During the first half of the Budget Session, the Lok Sabha exceeded the allotted time, dedicating 14 hours and 45 minutes to budget discussions against the scheduled 12 hours.
- **Reduced Debates in Parliament:**
 - In the 17th Lok Sabha, only 11 short-duration discussions and one half-an-hour discussion have been held so far. No discussions took place during the latest session.
 - Question Hour was significantly reduced, functioning for only 19% of the scheduled time in the Lok Sabha and 9% in the Rajya Sabha.
 - No Private Member Bills were introduced or discussed, and each House had one Private Member Resolution.
- **Lower Examination under Parliamentary Committee:**
 - Only 14 Bills have been referred for further examination under Parliamentary Committee during the 17th Lok Sabha.
 - In the 16th Lok Sabha, only 25% of introduced Bills were referred to committees, representing a declining trend compared to the 71% and 60% in the 15th and 14th Lok Sabha, respectively.
- **Delayed Election of Deputy Speaker:** The 17th Lok Sabha, despite entering its final year, has not elected a Deputy Speaker as required by Article 93 of the Constitution.

Reasons for the Lower Productivity

- **Opposition Protests and Disruptions:**
 - The 17th Lok Sabha witnessed frequent disruptions and protests from opposition parties, leading to a significant loss of time and reduced productivity.
 - These disruptions were mainly centered around contentious issues such as the Citizenship Amendment Act (CAA), National Register of Citizens (NRC), and farm laws.
- **Lack of Consensus:**
 - Despite the ruling party holding a clear majority, there was a lack of consensus among members of parliament on crucial matters.
 - This lack of agreement among the lawmakers caused delays in the passage of important bills and legislation.
- **Shorter Sessions:**
 - Compared to previous Lok Sabhas, the 17th Lok Sabha had shorter sessions.
 - The limited time available for thorough discussions and debates on vital bills and issues resulted in many important matters being left pending without sufficient attention.

Implications of Lower Productivity of Lok Sabha

- **Delay in Passing Important Bills and Legislation:**
 - The primary consequence of a non-productive Lok Sabha is the delay in passing significant bills and legislation.
 - This delay affects crucial areas such as taxation, infrastructure, and social welfare, postponing the implementation of necessary policies and reforms.
- **Lack of Accountability and Oversight:**
 - Ineffective functioning of the Lok Sabha hampers the process of holding Members of Parliament accountable for their actions.
 - Insufficient debate and scrutiny result in a lack of thorough examination of proposed laws and decisions, undermining the democratic principle of checks and balances and allowing the executive to push through decisions without proper oversight.
- **Diminished Public Trust:**
 - Delayed legislation and ineffective performance of elected representatives can erode the trust of citizens in democratic institutions.
 - This can lead to disillusionment and disengagement among the public, resulting in a decline in citizen participation and undermining the foundations of a healthy democracy.
- **Wasted Resources:**
 - Lower productivity of the Lok Sabha leads to wasted resources, particularly taxpayers' money.
 - Salaries and allowances of Members of Parliament are funded by the public exchequer, and if these resources are not utilized effectively due to disruptions or lack of productivity, it results in a waste of public funds that could have been used for other developmental purposes.
- **Economic Impact:**
 - A less productive Lok Sabha can have a negative impact on the economy.
 - Delayed or inadequate legislation on crucial economic issues can hinder growth, investment, and development.
 - The lack of certainty and efficient decision-making can undermine investor confidence and lead to a slowdown in economic progress.

Way Forward

- **Reinvigorating Parliamentary Democracy:**
 - There is a need to revitalize the culture of parliamentary democracy in India.
 - This involves fostering respect, decorum, and professionalism among parliamentarians.
 - Members should prioritize their role as representatives of the people and actively participate in debates and discussions.
- Promoting Constructive Dialogue and Debate:
 - It is crucial to promote a culture of constructive dialogue and debate within Parliament.
 - Political leaders should engage in substantive discussions on policy matters rather than resorting to disruptive tactics or personal attacks.

PEPPER IT WITH

Parliament, Lok Sabha, Rajya Sabha, Budget Session. Parliamentary Committee, Deputy Speaker, Citizenship Amendment Act (CAA), National Register of Citizens (NRC)

- Strengthening Oversight Function:
 - Efforts should be made to strengthen the oversight function of Parliament.
 - This can be achieved through rigorous questioning, scrutiny of government actions, and thorough debates on important policy decisions.
 - Relevant information should be provided to parliamentarians in a timely and transparent manner to facilitate effective oversight.

Alderman

News Excerpt

Recently, during the review of the Delhi government's petition against the appointment of Aldermen by the Lieutenant-Governor (LG), the Supreme Court expressed concern over the potential destabilization of the Elected Civic Body if the LG were given the power to nominate members of the Municipal Corporation of Delhi (MCD).

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Pre-Connect

Understanding Delhi Govt vs LG Conflict

- There is a jurisdictional conflict between the government of NCT (National Capital Territory) Delhi and the Union Government, specifically the Lieutenant Governor (LG), due to the co-existence of Article 239 and 239AA.
- The Union government argues that as Delhi is a Union Territory, the LG has independent authority under Article 239.
- The Delhi government asserts that Article 239AA grants Delhi special status with its own legislatively elected government, leading to a clash over administrative powers.
- The central government believes that, as the national capital, it should have control over administrative services in Delhi, including appointments and transfers.
- The Delhi government argues that elected representatives should have the power to decide on transfers and postings, in line with the spirit of federalism.
- The allocation of powers between the Delhi government and the center regarding administrative services was referred to a larger bench by a two-judge bench in February 2019.
- In May 2022, a three-judge bench referred the case to a larger bench based on the central government's plea, stating that the control over administrative services required further examination.
- The Government of National Capital Territory of Delhi (Amendment) Act 2021, passed by Parliament, stipulates that the term "government" in laws made by the Delhi Legislative Assembly refers to the Lieutenant Governor (LG).

About Alderman

Etymology and Early Usage:

- The word "alderman" is derived from the combination of "old" and "man," originally referring to an older or experienced person.
- Initially, it denoted the elders of a clan or tribe, but later it became a term for the king's viceroys, irrespective of age.
- Over time, it acquired a more specific meaning as the "chief magistrate of a county," with both civil and military responsibilities.

Association with Municipal Governments:

- In the 12th century CE, with the increasing association of guilds with municipal governments, "alderman" came to be used for officers of municipal bodies.
- This usage of the term persists to the present day.

The Case of Delhi:

- According to the Delhi Municipal Corporation Act of 1957, the administrator (the Lieutenant Governor) has the authority to nominate ten individuals, aged 25 or above, to the municipal corporation.
- These nominees are expected to possess special knowledge or experience in municipal administration.
- Their role is to assist the house in making decisions of public importance.

Issues Associated with the Appointment of Aldermen

Suitability of Nominated Individuals:

- The first issue pertains to the suitability of the individuals nominated for the position.
- Upon submission of the recommendations to the LG, it was discovered that two out of the ten nominees were deemed technically unqualified for the role.

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- This raises doubts about the comprehensiveness and transparency of the nomination process, as it is crucial to appoint only qualified and suitable individuals for the position.

Maintenance of Control and Influence:

- The second concern revolves around the perception that the LG's appointment of aldermen aims to retain control and influence within the Municipal Corporation of Delhi (MCD), despite their electoral defeat.
- This raises questions about democratic principles of representation and raises concerns about the fairness of power dynamics within the MCD.

Supreme Court Observations

- The Additional Solicitor General, representing the Lieutenant Governor (L-G), argued that there is a clear distinction between the L-G's powers under Article 239AA of the Constitution and their role as the Administrator of the national capital.
- It was claimed that the L-G has an active role in the nomination of aldermen based on the existing law.
- However, the Supreme Court (SC) expressed concerns that granting such power to the L-G could potentially destabilize the democratically elected Municipal Corporation of Delhi (MCD). This is because the aldermen, if nominated by the L-G, would have voting power and could impact the functioning of the MCD.
- The SC clarified that the L-G does not possess extensive executive powers in the national capital, which operates under a unique "Asymmetric Federal Model" of governance.
- In this model, different regions or components within a federation have varying degrees of autonomy and powers.
- The court specified that the L-G can exercise executive power at their discretion only in three specific areas, as stated in Article 239AA(3)(a):
 - Public order
 - Police
 - Land in Delhi
- The court also stated that if the L-G disagrees with the Council of Ministers of the Government of the National Capital Territory of Delhi, they should follow the procedure outlined in the Transaction of Business (ToB) Rules 1961.
- These ToB rules derive from Article 77(3) of the Constitution, which provides a framework for the allocation of work and responsibilities among various government departments and ministries.
- The ToB rules outline the procedures for formulating, approving, and implementing government policies, decisions, and actions.

PEPPER IT WITH

Article 239 and 239AA, Federalism, Delhi Municipal Corporation Act, 1957, Lieutenant-Governor's (LG)

Default Bail

News Excerpt

The Supreme Court has directed lower courts to independently grant default bail in criminal cases if the charge sheet is not filed within the prescribed time limits of 60 or 90 days. This instruction came during the hearing of an Enforcement Directorate appeal that sought the recall of the Ritu Chhabaria judgment.

The Ritu Chhabaria judgment recognized the right to default bail as a fundamental right under Article 21 of the Constitution, safeguarding accused individuals from the unchecked power of the State.

Pre-Connect

Different types of bails

- Regular Bail: It refers to the court's order to release an arrested person from police custody. To obtain regular bail, an individual can file an application under Sections 437 and 439 of the Code of Criminal Procedure (CrPC).
- Interim Bail: It is a temporary bail granted by the court while the application for anticipatory bail or regular bail is pending. It serves as a temporary release until a final decision is made by the court.
- Anticipatory Bail: It is a bail granted to a person even before their arrest. It is sought when there is a fear of arrest, and the person is not yet apprehended. To apply for anticipatory bail, an individual can file an application under Section 438 of the CrPC. This type of bail is issued by the Sessions Court and High Court.

Constitutional Provisions Related to Arrest

- Article 22 provides safeguards for individuals who have been arrested or detained. Detention can be either punitive or preventive in nature.

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- Punitive detention is imposed as a punishment after a person has been tried and convicted in court for committing an offense.
- On the other hand, preventive detention involves the detention of a person without trial or conviction by a court.
- Article 22 consists of two parts: the first part pertains to ordinary law cases, while the second part pertains to cases related to preventive detention laws.

Rights Given Under Punitive Detention	<ul style="list-style-type: none"> • Right to receive information about the reasons for the arrest. • Right to seek advice and be represented by a legal professional. • Right to appear before a magistrate within 24 hours, excluding travel time. • Right to be released within 24 hours, unless authorized for further detention by the magistrate. • These protections are not applicable to an enemy alien.
Rights Given Under Preventive Detention	<ul style="list-style-type: none"> • The maximum duration of detention is three months, but it can be extended if the advisory board, comprised of high court judges, finds sufficient cause. • The grounds of detention must be conveyed to the detainee, except for facts deemed against public interest. • The detainee has the right to present their case and make a representation against the detention order. • These protections apply to both citizens and aliens.

About Default Bail or Statutory Bail

Statutory Bail is the right to bail that arises when the police fail to complete an investigation within a specified period for a person in judicial custody.

- **Section 167(2) of the CrPC:**
 - Section 167(2) of the CrPC provides the framework for Statutory Bail.
 - If the police cannot conclude the investigation within 24 hours, the suspect is presented before a magistrate to determine custody.
- **Detention Period and Judicial Custody:**
 - As per Section 167(2) of the CrPC, the magistrate can order the accused person to be held in police custody for up to 15 days.
 - If more time is required, the magistrate can authorize the accused person's detention in judicial custody, i.e., jail.
- **The maximum detention periods are:**
 - Ninety days for crimes punishable by death, life imprisonment, or imprisonment for at least ten years.
 - Sixty days for other offenses.
- **Special Cases:**
 - Some special laws, such as the Narcotic Drugs and Psychotropic Substances Act, may have different investigation time limits, like 180 days.
 - Under the Unlawful Activities (Prevention) Act 1967, the default limit is 90 days, extendable for another 90 days based on a report by the Public Prosecutor.
 - The extension of time for investigation requires a judicial order and is not automatic.

PEPPER IT WITH

Section 167(2) of the Criminal Procedure Code (CrPC), Article 21, Article 22, Fundamental Rights.

Judgements Related to Default Bail

CBI vs Anupam J. Kulkarni (1992):

- **Maximum Police Custody Period:**
 - The Supreme Court (SC) ruled that a magistrate can authorize police custody for a maximum of 15 days after the arrest of the accused.
 - After this period, any further detention must be in judicial custody, unless the accused is implicated in a separate case arising from a different incident or transaction.
- **Exception for Separate Cases:** In situations where the same accused is involved in a different case stemming from a separate incident or transaction, the magistrate may consider granting police custody again.

Uday Mohanlal Acharya vs. State of Maharashtra (2001):

- ✓ **Right to Default Bail:** The SC, referring to the judgment in the case of Sanjay Dutt vs State, clarified that the accused can avail themselves of the right to default bail by filing an application for it, not when they are released on default bail.
- ✓ **Extinguishment of Default Bail:** If an order of default bail is granted to the accused but they fail to furnish bail and a charge sheet is filed during that time, the right to default bail will be extinguished.

Article 239AA

News Excerpt

Constitutional Bench of Supreme Court recently came with judgments with reference to powers of Delhi government and interpretation of Article 239AA of the constitution.

An ordinance was promulgated by centre after the judgment which was primarily aimed at power to transfer and appoint bureaucrats posted to Delhi.

Background

The ordinance nullified the effects of constitution bench's verdict, which gave the Delhi government power over administrative services in the capital.

SC also interpreted Article 239AA which deals with the governance structure of Delhi, as one that underlies the principles of federalism, participatory democracy, and collective responsibility.

About Article 239AA and Governance Model of Delhi

In 1992, Delhi was redesignated as the National Capital Territory of Delhi (Partial Statehood).

Evolution of Present Structure of Delhi

- In 1911, Lord Hardinge took the decision to transfer the Imperial Capital from Calcutta to Delhi and to make it the seat of the Central Government. The actual transfer of the capital took place on 1912.
- Before independence, Delhi had a number of Municipalities and its administration was being looked after by the Chief Commissioner.
- The Delhi State Legislative Assembly came into being on 17th March, 1952 under the Government of Part-C States Act, 1951.
- On the recommendations of the State Reorganization Commission (1955), Delhi ceased to be a Part-C.
- On the recommendations of Administrative Reforms Commission, the Delhi Administration Act, 1966 was enacted which provided for a deliberative body – called Metropolitan Council having recommendatory powers and consisted of unicameral democratic body with 56 elected and 5 nominated members. At the top, there was Lt. Governor or Administrator who was appointed by the President of India.
- S Balakrishnan Committee was constituted in 1987 to look into the issue of the Reorganisation of Delhi and came up with mid-way solution which makes it somewhere above the other Union Territories and somewhere below to the States.
- The report of the committee said that Delhi belongs to the nation as a whole, but it is also inhabited by its own people. Popular demand of giving statehood to Delhi was rejected because doing so will give Delhi a disproportionate presence in comparison to other states of India.
- The reason behind disproportionate presence was that providing statehood to Delhi would make Delhi a unique state which would not only govern Delhi but also govern important institutions of the country like the Union Parliament, Supreme Court, foreign embassies etc. However, the committee said that if it denies statehood to Delhi then it would be denying the people of Delhi a stake in their own future.
- The Committee also recommended that with a view to ensuring stability and permanence, the arrangements should be incorporated in the constitution to give the National Capital a special status among the Union Territories.
- Parliament passed the Constitution (69th Amendment) Act, 1991, which inserted the new Articles 239AA and 239AB in the Constitution providing, inter alia, for a Legislative Assembly for Delhi.
- Another comprehensive legislation passed by Parliament called "the government of National Capital Territory of Delhi Act, 1991", supplements the Constitutional provisions relating to the Legislative Assembly and the Council of Ministers and matters related thereto.
- The Assembly has the power to make laws with respect to all the matters in the State List or in the Concurrent List of the Constitution of India except Entries 1 (Public Order), 2 (Police), and 18 (Land) and entries 64, 65 and 66 relating to the said entries of the State List.
- The President appoints the Chief Minister and holds office during the pleasure of the President. The Chief Minister and Council aids and advises the Lt. Governor in the exercise of functions in relation to matters with respect to which the Legislative Assembly has power to make laws.

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The concept of collaborative federalism specifies that the Union and the State Governments should express their readiness to achieve the common objective and work together for achieving it. Their needs to be continuous and seamless interaction between the Union and the State Governments.

Why is Delhi a Union Territory?

Capitals of various countries of the world are usually governed by central government and this structure is supported with the view that capital belong to the entire nation and hence should be governed by the central government. Example: Canberra, the capital of the federal country Australia; Washington DC, the capital of the United States of America.

Analytica

The legal tussle over control on 'civil services' has been on for almost half a decade after the Supreme Court advised 'collaborative federalism' to Centre and Delhi governments.

- In July 2018, a judgment emphasized the need for mature statesmanship and cooperation between the Centre and the Delhi government. The judgment recognized the interdependence of the Centre and the Delhi government.
- According to the judgment, the Delhi government had exclusive executive powers, except in matters related to public order, police, and land. The Lieutenant Governor (L-G) was cautioned to intervene only in "fundamental" matters that could be escalated to the President. The L-G was urged not to delay official files sent by the Cabinet.
- This judgment modified a previous ruling by the Delhi High Court in August 2016, which granted the L-G complete control over all matters in the National Capital Territory of Delhi.
- Certain unresolved questions, including control over civil services, were left for a smaller Bench to decide. So, in February 2019, a Division Bench delivered a split decision on the issue of civil services control.
- Meanwhile, the Centre passed the Government of National Capital Territory of Delhi (Amendment) Act 2021 and the Transaction of Business of Government of National Capital Territory of Delhi (Amendment) Act.
- The Delhi government challenged the amended sections, alleging a diminishment of its constitutionally-guaranteed powers and functions. The government argued that the new statutes attempted to undermine the 2018 judgment by equating the L-G with the government.
- In May 2022, the case was referred to a Constitution Bench for a definitive ruling on control over civil services.
- The Delhi government believes the Centre is eroding federalism and emphasizes the importance of controlling officer transfers and postings for collective responsibility. The Centre argues that a metropolis like the National Capital should be under the control of the union government, not a State legislature.
- The Centre views Union Territories as extensions of the Central government, administered through its officers.

Evolution of Union Territories in India

- ✓ 1874: Certain areas constituted as scheduled districts
- ✓ 1935: Part IV of GoI 1935 specified about chief commissioner's provinces
- ✓ 1946: 4 seats were reserved in the constituent assembly for chief commissioner's provinces
- ✓ 1950: Placed in the category of Part 'C' States and Part 'D' Territories
- ✓ 1956: Constituted as the 'union territories' by the 7th CAA and the States Reorganisation Act (1956)
 - (1) Andaman and Nicobar Islands– 1956,
 - (2) Delhi–1956,
 - (3) Lakshadweep–1956,
 - (4) Dadra and Nagar Haveli–1961 & Daman and Diu–1962: They were merged into one union territory in 2019
 - (5) Puducherry– 1962,
 - (6) Chandigarh–1966,
 - (7) Jammu and Kashmir–2019 and
 - (8) Ladakh–2019
- ✓ In 1950, the constitution contained a four-fold classification of the states and territories of the Indian Union - Part A, Part B and Part C states and Part D territories. In 1956 after the States Reorganisation Act 1956, Part C and Part D states jointly came with a category known as Union Territory
- ✓ Articles 239-241 in Part VIII of the Constitution specifies about union territories. There is no uniformity in their administrative system but every union territory is administered by the President acting through an administrator appointed by her/him. However, the administrator (also known as Lieutenant Governor or Chief Commissioner or Administrator) is not head of the state like governor.

The Union Territory of Puducherry comprises of the erstwhile French colonies viz. Puducherry, Karaikal, Mahe and Yanam. Puducherry and Karaikal regions are surrounded by Tamil Nadu, whereas Mahe is surrounded by Kerala and Yanam by Andhra Pradesh.

- ✓ **Article 239:** Unless provided by Parliament by law, every Union territory shall be administered by the President acting, to such extent as he thinks fit, through an administrator to be appointed by him with such designation as he may specify. The president can also appoint a governor as an administrator of an adjoining UT and in such case, the governor will function independently of council of ministers.
- ✓ **Article 239A:** It specifies for creation of local Legislatures or Council of Ministers or both for certain Union territory.

Why UTs have been created

1. Political and Administrative consideration
2. Strategic importance and Security reasons
3. Cultural Distinctiveness
4. Difficult Terrain, Internal security, cross border terrorism etc
5. Special Treatments and care of certain sections of society

Administration of UTs

- Under the Government of India (Allocation of Business) Rules 1961, Ministry of Home Affairs is the nodal ministry for all matters of Union Territories relating to legislation, finance and budget, services and appointment of Lt. Governors and Administrators.
- Parliament can make laws on any subject of the three lists (including the State List) for the union territories including Puducherry, Delhi and Jammu and Kashmir.
- However, the legislative assembly of Puducherry can also make laws on any subject of the State List and the Concurrent List. Also, the legislative assembly of Delhi can make laws on any subject of the State List (except public order, police and land) and the Concurrent List.
- On the same line, the legislative assembly of Jammu and Kashmir can make laws on any subject of the State List (except public order and police) and the Concurrent List.
- 3 UTs (Delhi, Puducherry and Jammu & Kashmir) have representation in Rajya Sabha. The populations of other UTs are too small to have representation in Rajya Sabha.
- Delhi is the only UT having High Court of its own (Since 1966)
- 3 Union Territories have their own legislative Assembly (Delhi, Jammu and Kashmir and Puducherry) with council of ministers headed by Chief Minister. However it doesn't limit the control of centre.
- The Constitution does not contain any separate provisions for the administration of acquired territories. But, the constitutional provisions for the administration of union territories also apply to the acquired territories.

PEPPER IT WITH

Competitive Federalism, Cooperative Federalism, Electoral Federalism, Quasi Federal, Federal with Unitary Biasness

Way Forward

- ✚ The control of the Union over Delhi is vital in the national interest.
- ✚ The LG is bound to the aid and advice of the Delhi Cabinet only in matters in respect of which the Legislative Assembly has the powers to make laws
- ✚ LG's role is not that of merely a Constitutional figurehead, though the ultimate responsibility for good administration of Delhi is vested in the President acting through the Administrator. However, the Administrator has to take a somewhat more active part in the administration than the Governor of a State.
- ✚ Hence, differences of opinion would arise between the LG and the elected government. It has been recommended that the "best way" of doing this is to let the LG refer such differences of opinion with the elected government to the President for a final decision.
- ✚ There can be issues in case of according statehood to Delhi like other states but the LG should act on the aid and advice of the elected government.

District Judiciary

News Excerpt

Supreme Court in a recent judgment specified that the independence of the district judiciary is also a part of the **basic structure of the Constitution**, underlining that the access to justice would remain illusory without impartial and independent judges at the grassroots level.

The judgment also held that the judicial independence from the executive and the legislature requires the judiciary to have a say in matters of finances.

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More on the News

- District judiciary is the backbone of the judicial system. Vital to the judicial system is the independence of the judicial officers serving in the district judiciary. To secure their impartiality, it is important to ensure their financial security and economic independence.
- The judgment also gave a series of directions to amend the service rules of the district judiciary and for payment of arrears of pension, additional pension, gratuity and other retiral benefits.
- The directions were based on the recommendations made in the report of the court-appointed Second National Judicial Pay Commission report of 2020 headed by **Justice P.V. Reddi** (retired).

Importance of District Judiciary

- District judiciary is, in most cases, also the court which is most accessible to the litigant and handles 1.13 million cases every day making it most accessible court.
- They hear the cases at first unless the person is going through writ jurisdiction of SC or HCs and play an important role in the application and interpretation of laws.
- They ensure that the decisions or orders given are properly enforced. On failure, a case of contempt of court can be filed.
- They also appoint the lower-level officers like clerks etc. and ensure that the institution works smoothly.

What Constitutes District Judiciary?

- ✓ Hierarchy of district courts along with High court constitutes the state judiciary which along with supreme court forms the integrated judicial system of India.
- ✓ Part VI from article 233 to 237 of Indian constitution specifies the provisions to regulate the organization and structure of lower courts in India which is also termed as subordinate courts.
- ✓ However it should be noted that judiciary in various judgments has also specified that the term subordinate courts should not be used. Not only is this a misnomer because the district judge is not per se subordinate to any other person in the exercise of her jurisdiction but also is disrespectful to the constitutional position of a district judge.
- ✓ **Appointment of District Judges (Article 233):** Appointments of persons to be, and the posting and promotion of, district judges in any State shall be made by the Governor of the State in consultation with the High Court exercising jurisdiction in relation to such State. A person to be appointed as a district judge should have the following qualifications
 - Should not be in the service of union or state
 - Not less than seven years as an advocate or a pleader
 - Should be recommended by the High Court for appointment
- ✓ **Recruitment of persons other than district judges to the judicial service of a state (Article 234):** They shall be made by the Governor of the State in accordance with rules made by him in that behalf after consultation with the State Public Service Commission and with the High Court exercising jurisdiction in relation to such State.
 - In practice, the State Public Service Commission conducts a competitive examination for recruitment to the judicial service of the state.
- ✓ **Control over subordinate courts (Article 235):** The control over district courts and other subordinate courts including the posting, promotion and leave of persons belonging to the judicial service of a state and holding any post inferior to the post of district judge is vested in the high court.
 - This is in pursuance of the separation of powers doctrine, as it placed the civil judicial mechanism of a state under the control of the High Court rather than the executive.
- ✓ Article 236:
 - The expression "district judge" includes judge of a city civil court, additional district judge, joint district judge, assistant district judge, chief judge of a small cause court, chief presidency magistrate, additional chief presidency magistrate, sessions judge, additional sessions judge and assistant sessions judge;
 - The expression "judicial service" means a service consisting exclusively of persons intended to fill the post of district judge and other civil judicial posts inferior to the post of district judge.
- ✓ Article 237: The Governor may direct that the provisions relating to persons in the state judicial service would apply to any class or classes of magistrates in the state.

Challenges Faced by Lower Judiciary

1. **Judicial Appointments and Vacancies:** To admit civil judges (Junior division), there is a exam popularly known as PCS-J. In Malik Mazhar Sultan VS UPPSC the SC held that a two-tier process of examination should take 153 days and a three-tier examination procedure should take around 273 days. But most of the time, the governments are unable to complete the process on time. As of sept 2020, there is approximately 21% vacancy in the lower judiciary (5146 out of 24018).

CURRENT CONNECT- JUNE- 23

2. **Poor Infrastructure:** The facilities at a district-level court are not adequate. In case of infrastructure, lower courts are far behind the higher level courts.
3. **Digitalisation:** It has not been implemented properly and even several advocates and other officials lack digital knowledge. According to a report, there is a dearth of courtrooms at the district level.
4. **Inadequate support staff:** There is an inadequacy of support staff like clerks, scribes and other officials. Due to this, the office work cannot be conducted adequately and there is a pendency of cases.
5. **Lack of training and legal awareness:** There should be proper training and workshop.
6. **Role of Women (Lack of gender sensitization):** Around 27 percent of the judges at the lower level are women. However, it is more than what is there in the HCs and Supreme Court but in reality absence of female judges affects the administration of justice.
7. **Pendency of Cases:** Even after hearing more than 11 lakh cases daily, out of around 4.5cr pending cases, 87.6 percent of cases were pending in subordinate courts and 12.3% in High Courts.

Conclusion

It performs an important role in upholding the rule of law. The independence of the district judiciary must also be equally a part of the basic structure of the Constitution. Without impartial and independent judges in the district judiciary, 'Justice', a preambular goal, would remain illusory.

PEPPER IT WITH

Amicus Curiae, Munsif Courts, Civil Court, Session court

Some Facts

- ✚ If no new cases were to be filed, the time taken by courts to dispose of all the pending cases at the current disposal rate would be 1.3 years for the Supreme Court and three years each for High Courts and subordinate courts.
- ✚ In HCs, 21% cases pending for over ten years; in subordinate courts, 23% cases for over five years.
- ✚ Pendency of cases for long periods has resulted in a large number of undertrials. Number of undertrials in prisons more than twice the number of convicts.
- ✚ Total number of judges in HC-1098. Number of judges in HC is decided by President.
- ✚ Total no of judges in Supreme Court-34 including CJI. Number of judges in SC is decided by Parliament.
- ✚ Courts saw an increase of over 27% in pendency between December 2019 and April 2022.

The district judge is also the sessions judge. When he deals with civil cases, he is known as the district judge and when he hears the criminal cases, he is called as the sessions judge. The district judge exercises both judicial and administrative powers.

SOCIAL ISSUES

Iron fortification and related issues

News Excerpt

Iron is an essential mineral required for many bodily functions, including the formation of hemoglobin, but can be harmful when taken in excess.

Pre-Connect

- One of the methods suggested for the treatment of iron deficiency anemia is fortification of food with iron. Staple food like Rice, Wheat, and even salt is fortified to provide iron requirements for adult women and men.
- **Iodine and Iron together react with salt, so fortification of salt with both of them simultaneously is problematic.**
- Excess consumption of iron can occur when one consumes two fortified foods simultaneously.
- Another factor behind excessive consumption of iron is if women consume additional iron supplements under the National Iron Plus Initiative programme.
- The tolerable upper limit of intake is at 40 mg/day.
- This overdose of iron consumption is lethal in case of patients with thalassemia and other hemolytic anemias, hemochromatosis, and chronic liver disease, which have impaired iron excretion mechanisms.
- **Men are more vulnerable than women in case of excessive iron consumption,** women can 'excrete' iron from the body through the menstrual cycle, but men cannot, unless they have some form of pathological or abnormal bleeding. This makes men particularly vulnerable to excess iron intake.
- Iron transactions in the body are complex - Recent studies using stable isotopic iron to accurately understand iron balance (absorption and excretion), conducted in the U.S. and Africa, showed that with fortification, there is an increased excretion of iron in children, such that the body tries to rid itself of the excess absorbed iron. **Iron fortification is causing gut inflammation in undernourished children.**

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Iron deficiency

Iron deficiency is very significant global health issue, majorly in developing nations, impacting both adults and children. It can lead to anemia, impaired cognitive development, reduced work productivity, and increased maternal and child mortality rates. The key intervention employed to combat this problem is Iron fortification.

Some important points related to iron fortification:

1. Varieties of iron fortification: Iron can be added to various food vehicles, including staple foods like wheat flour, maize flour, rice, and edible oils. Depending on the type of food product, different forms of iron, such as ferrous sulfate, ferrous fumarate, or electrolytic iron, can be used for fortification.
2. Simultaneous iodine and iron fortification: In some countries, iron is added along with iodine during the process of salt iodization. This approach helps address two important micronutrient deficiencies simultaneously.
3. Benefits of iron fortification: Iron-fortified foods can help improve iron status in populations and reduce the prevalence of iron deficiency anemia. It is a cost-effective strategy that does not require significant changes in dietary habits, making it feasible for implementation on a large scale.
4. Challenges and considerations: Iron fortification programs face various challenges, including the selection of widely consumed food items suitable for fortification, ensuring stability and bioavailability of iron in fortified foods, effective monitoring and regulation of fortification processes, and addressing potential negative changes in the sensory properties of fortified foods. Additionally, specific populations, such as individuals with genetic disorders or those at risk of iron overload, may require careful monitoring to prevent adverse health effects.
5. Monitoring and evaluation: Regular monitoring and evaluation are crucial to assess the effectiveness of iron fortification programs and ensure their success. Monitoring iron status, prevalence of anemia, and compliance with fortification regulations can help identify gaps and make necessary adjustments.
6. Collaboration and policy support: Successful iron fortification programs often require collaboration among government agencies, food industries, and international organizations. Developing and implementing appropriate policies, regulations, and quality control measures are vital for sustained fortification efforts.

Conclusion

Iron fortification is an evidence-based intervention that has demonstrated positive impacts on reducing iron deficiency anemia in many countries. However, it is essential to tailor fortification strategies to specific population needs, considering factors such as dietary patterns, cultural practices, and existing health systems. Regular monitoring and evaluation, along with a comprehensive approach, can help ensure the success of iron fortification programs in combating iron deficiency and improving public health.

Health for All: WHO

News Excerpt

The World Health Organization (WHO) launched a roadmap to focus on the links between health and sustainable, inclusive and innovation-led economic growth during the ongoing 76th World Health Assembly (WHA). The WHO Council on the Economics of Health for All has outlined a bold new path to reorient economies to deliver what matters — health for all.

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Pre-Connect

- Globally WHO is fully committed to achieving “Health for All” through Universal Health Coverage (UHC)- when all people can access essential health Services, without any financial hardships.
- World Health Organization (WHO) defines health:** a certain totality of health to the realms of mental and social well-being and happiness beyond physical fitness, and an absence of disease and disability.
- This means that we cannot achieve health in its wider definition without addressing health determinants as it needs an intersectoral convergence beyond medical and health departments such as women and child development, food and nutrition, agriculture and animal husbandry, civil supplies, rural water supply and sanitation, social welfare, tribal welfare, education, forestry.
- The slogan “Health for All by 2000” was proposed by **Halfdan Mahler** and endorsed by the World Health Assembly in 1977. This slogan had an inherent implication, i.e., “for All”, which means universalisation. Thus, nobody is denied this and everybody is eligible without being discriminated against on the basis of financial status, gender, race, place of residence, affordability to pay or any other factors.
- Universal Health Care/coverage (UHC) was implied as early as 1977. India, through its National Health Policy 1983, committed itself to the ‘Health for All’ goal by 2000.
- The report recommended policy approaches- The choices on channeling and shaping public and private investments will determine whether the world continues to struggle with the consequences of major health challenges or succeeds in creating a new political economy based on health for all.
- The report further recommended reorienting economies to deliver health for all across four interrelated themes:
 - Value:** valuing and measuring what matters through new economic metrics;
 - Finance:** how to finance health for all as a long-term investment, not a short-term cost;
 - Innovation:** how to advance health innovation for the common good;
 - Capacity:** how to strengthen dynamic public sector capacity to achieve health for all.
- The COVID-19 pandemic has shown an urgent need for a globally agreed system for sharing pathogen materials and clinical samples to facilitate the rapid development of medical countermeasures as global public goods

Alma-Ata Declaration of 1978:

The Alma-Ata Declaration of 1978 emerged as a major milestone of the twentieth century in the field of public health, and it identified primary health care as the key to the attainment of the goal of Health for All.

Declaration:

- The declaration reaffirms that health, which is a state of complete physical, mental and social wellbeing, and not merely the absence of disease. It also considers Health as a fundamental human right and that the attainment of the highest possible level of health is a most important world-wide social goal.
- The existing inequality among Developed and Developing countries and within the countries are common cause of concerns.
- Economic and Social Development which are the components of New International Economic Order, is required for the reduction of inequality among developing and developed countries and health for all.
- The Declaration promotes people’s participation by highlighting the importance of engagement of community in planning and implementation of health care.
- The responsibility of providing healthcare lies with the Government of the country, international organisation etc. It also highlights importance of “Health for all” by 2000, which will help in achieving social and economic productive life.
- Primary Health care has been given special significance.
- All governments should formulate national policies, strategies and plans of action to launch and sustain primary health care as part of a comprehensive national health system and in coordination with other sectors.

8. All countries should cooperate in a spirit of partnership and service to ensure primary health care for all people since the attainment of health by people in any one country directly concerns and benefits every other country.
9. An acceptable level of health for all the people of the world by the year 2000 can be attained through a fuller and better use of the world's resources, a considerable part of which is now spent on armaments and military conflicts.

Way forward

Partners, donors and other stakeholders in the region must go it all on UHC and 'Health for All', recognising that the PHC approach is the most effective, efficient and equitable way to build national health systems that are unified, and which achieve healthier populations, health security and UHC.

Hunger Hotspots: FAO-WFP

News Excerpt

India's neighbours, Pakistan, Afghanistan and Myanmar, are among the hunger hotspots in the world, a new United Nations early warning report has found, warning of increasing acute food insecurity in several parts of the world.

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Pre-Connect

- The Food and Agriculture Organization of the United Nations (FAO) and the World Food Programme (WFP) warn that acute food insecurity is likely to deteriorate further in 18 hunger hotspots – comprising a total 22 countries.
- Afghanistan, Nigeria, Somalia, South Sudan and Yemen remain at the highest concern level.
- Haiti, the Sahel (Burkina Faso and Mali) and the Sudan have been elevated to the highest concern levels; this is due to severe movement restrictions of people and goods in Haiti, as well as in Burkina Faso and Mali, and the recent eruption of conflict in the Sudan.
- Pakistan, the Central African Republic, Ethiopia, Kenya, the Democratic Republic of the Congo and the Syrian Arab Republic are hotspots with very high concern, and the warning is also extended to Myanmar.
- All these hotspots have a high number of people facing critical acute food insecurity, coupled with worsening drivers that are expected to further intensify life-threatening conditions in the coming months.

Factors

- The eruption of conflict in Sudan marks a new spike in global levels of organized violence and armed conflict which have slightly reduced compared to the last edition of this report.
- Conflict will disrupt livelihoods – including agricultural activities and commercial trade – as people are either directly attacked or flee the prospect of attacks, or face movement restrictions and administrative impediments.
- The use of explosive ordnance and siege tactics in several hunger hotspots continues to push people into catastrophic levels of acute food insecurity, highlighting the critical role of humanitarian access in preventing the worst outcomes of hunger.
- Economic concerns continue to drive acute food insecurity in almost all the hunger hotspots.
- Prices of foodgrains in domestic economy remains high
- Limited economic access is likely to be further compounded by the overall reduction in donor support to offset global hunger.
- Weather extremes, such as heavy rains, tropical storms, cyclones, flooding, drought and increased climate variability, remain significant drivers in some countries and regions.

Way forward

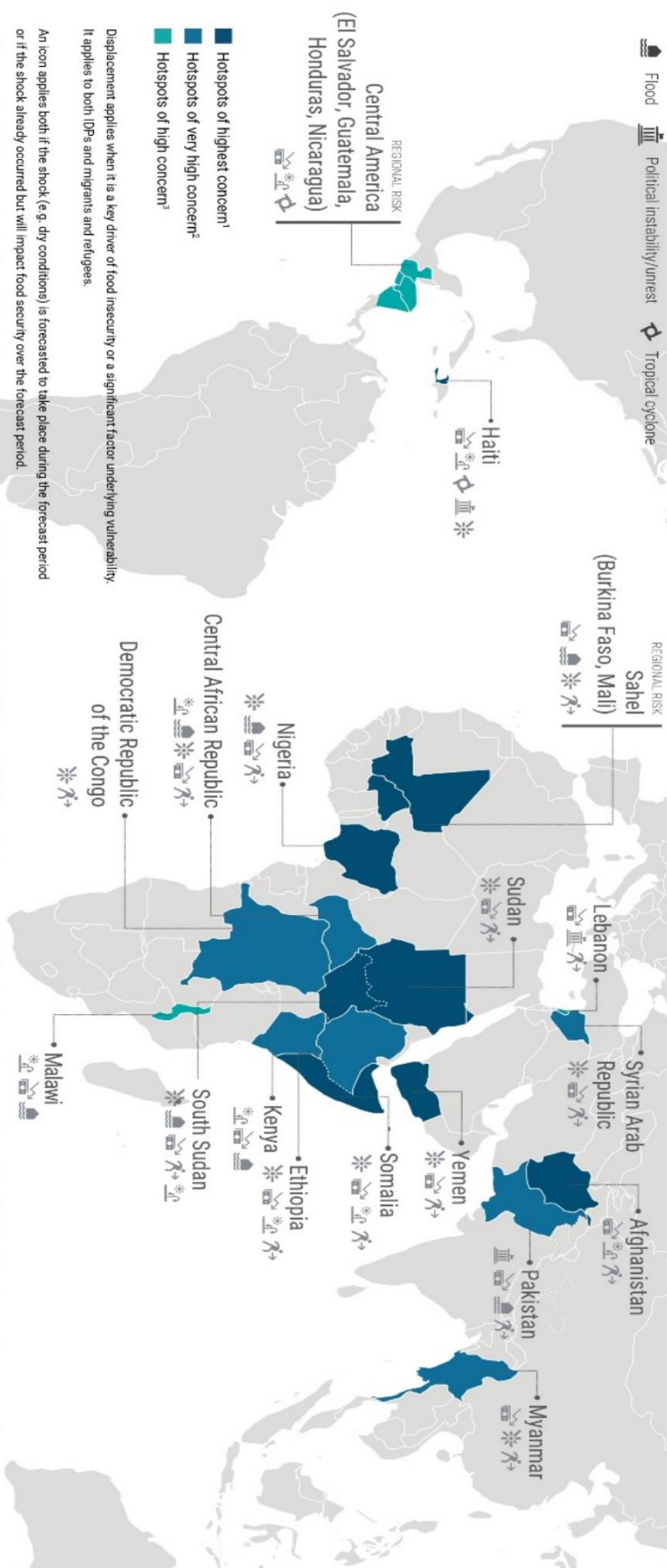
- Urgent and scaled-up assistance is required in all 18 hunger hotspots to protect livelihoods and increase access to food.
- This is essential to avert a further deterioration of acute food insecurity and malnutrition.
- In the hotspots of highest concerns, humanitarian actions are critical in preventing further starvation and death.
- However, humanitarian access is limited in various ways, including insecurity due to organized violence or conflict, the presence of administrative or bureaucratic impediments, and movement restrictions.

Early warning hunger hotspots June to November 2023

Key drivers and aggravating factors

Conflict/Insecurity → Displacement → Dry conditions → Economic shocks

Flood → Political instability/unrest → Tropical cyclone



Displacement applies when it is a key driver of food insecurity or a significant factor underlying vulnerability. It applies to both IDPs and migrants and refugees.

An icon applies both if the shock (e.g. dry conditions) is forecasted to take place during the forecast period or if the shock already occurred but will impact food security over the forecast period.

¹ This category includes hotspots already with populations in Catastrophe (Integrated Food Security Phase Classification [IPC]/Cadre Harmonisé [CH]), as well as hotspots at risk of deterioration towards catastrophic conditions. At risk are those hotspots where an extremely vulnerable population in Emergency (IPC/CH Phase 4) is facing severe aggravating factors – especially access constraints – that indicate a further deterioration and possible occurrence of catastrophic conditions in the outlook period. Per definition, this category also includes hotspots with Famine or Risk of Famine.

² These are hotspots with sizeable populations – over 500 000 people – estimated or projected to be in Emergency (IPC/CH Phase 4) levels of acute food insecurity or identified as severely acute food insecure as per WFP's Consolidated Approach for Reporting Indicators of Food Security (CAIR) or remote CAIR (rCAIR) methodology, or hotspots with more than 10 percent of the analysed population in Emergency (IPC/CH Phase 4) or severely acute food insecure, and at least 50 percent of the population analysed, in the included countries, life-threatening conditions are expected to further intensify in the outlook period.

³ Other countries, in which acute food insecurity is likely to deteriorate further during the outlook period, and which were identified as hunger hotspots.

Source of data: FAO and WFP. 2023. *Hunger Hotspots analysis (June to November 2023)*. Rome. **Source of map:** United Nations. 2020. *Map of the World*. Cited 20 September 2022. www.un.org/geospatial/content/map-world

The boundaries and names shown and the designations used on this map(s) in this information product do not imply the expression of any opinion whatsoever on the part of FAO and WFP concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined. Final status of the Abkhaz area is not yet determined.

National Population Register and Census

News Excerpt

If citizens want to exercise the right to fill the Census form on their own rather than through government enumerators, they will have to first update their National Population Register (NPR) details online.

Pre-Connect

- Census 2021, which has been postponed indefinitely, will be the first digital Census giving citizens an opportunity to “self-enumerate” as and when it is conducted.
- The Census is conducted in two phases. The first phase — the House listing Operations (HLO) and Housing Census — is to be conducted with simultaneous updating of NPR. Population enumeration is the second and the main phase, which collects details on key social and economic parameters.
- According to a collection of reports released by Home Minister, “self-enumeration for Census will be provided to only those households that have updated the NPR online”.
- “During self-enumeration in NPR, Aadhaar / mobile number is mandatorily collected,” the report which contains the details of Census exercises.
- According to the Citizenship Rules 2003, the NPR is the first step towards compilation of the National Register of Indian Citizens (NRIC/NRC).
- The yet-to-be-launched mobile-friendly portal will allow users to register the mobile number in the NPR database, self-enumerate and fill the details under House listing Operations.
- “The advent of technology has given the ORGI an opportunity to give the power in the hands of the public by making them a part of Census operations so that they themselves can enumerate in Census.

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About Census

- A population Census is the process of collecting, compiling, analyzing and disseminating demographic, social, cultural and economic data relating to all persons in the country, at a particular time (ten years interval in India for population census).
- The Indian Census has a very long history behind it. The earliest literature ‘Rig Veda’ reveals that some kind of Population count was maintained during 800-600 BC.
- Kautilya’s Arthashastra, written around 321-296 BC, laid stress on Census taking as a measure of State policy for purpose of taxation.
- During the regime of Mughal king Akbar, the administrative report ‘Ain-e-Akbari’ included comprehensive data pertaining to population, industry, wealth and many other characteristics.
- The first complete census of an Indian city was conducted in 1830 by Henry Walter in Dacca.
- In 1849 Government of India ordered Local Government to conduct quinquennial returns of population.
- The Census of 1881 which was undertaken by W.C. Plowden, Census Commissioner of India was a great step towards a modern synchronous census. Since then, censuses have been undertaken uninterruptedly once every ten years.
- The census of 1881 took in entire continent of British India (except Kashmir) which also includes feudatory states in political connection with the Government of India. However it did not include French and Portuguese colonial possessions.
- The first census of Independent India had 14 questions while the last one had 29 questions. The government has proposed 31 questions for the current census.
- The responsibility of conducting the decadal census rests with the Office of the Registrar General and Census Commissioner of India, Ministry of Home Affairs, Government of India.

Way forward

“The effort is to hold a digital Census but the dates are yet to be decided. Even if the Census is conducted before the general elections, the findings can be made available only by 2024-25. The Census enumeration will be preceded by house-listing enumeration where the exercise for NPR.

Unnecessary hysterectomies

News Excerpt

States and UTs were instructed by the Supreme Court to implement health guidelines formulated by the Centre to monitor “unnecessary” hysterectomies within three months.

Pre-Connect

- Worried that poor, less-educated women, particularly in the rural areas, continue to be at higher

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risk of undergoing unnecessary and often unjustified hysterectomies, the Health Ministry has written to all stakeholders to work towards plugging “such hysterectomies performed by certain medical institutions”.

- Hysterectomy is a surgical procedure to remove the uterus and it was found, through a public interest litigation (PIL), that in the States of Bihar, Chhattisgarh, and Rajasthan “unnecessary hysterectomies” were carried out under the Rashtriya Swasthya Bima Yojana as well as other government schemes related to healthcare.
- It was also noted with concern that several healthcare institutions were found to be misusing the procedure only to claim high insurance fees from governments under various health insurance schemes.

What is hysterectomy?

- It is a surgical procedure to remove the uterus, and sometimes surrounding organs and tissues.
- When only the uterus is removed, it is called a partial hysterectomy. When the uterus and cervix are removed, it is called a total hysterectomy.
- When the uterus, cervix, part of the vagina, and a wide area of ligaments and tissues around these organs are removed, it is called a radical hysterectomy.
- These procedures may be done through the vagina (with no incisions in the abdomen) or through an incision (cut) in the abdomen.

Way Forward

The right to health is an intrinsic element of the right to life under Article 21 of the Constitution. Life, to be enjoyed in all its diverse elements, must be based on robust conditions of health. There has been a serious violation of the fundamental rights of the women who underwent unnecessary hysterectomies.

National Rare Diseases Committee

News Excerpt

The Delhi High Court has set up a five-member panel to implement the Centre’s rare diseases policy in an efficient manner and ensure that its benefits reaches patients.

Pre-Connect

- The National Rare Diseases Committee will also look into the case of these patients, enrolled with the All India Institute of Medical Sciences (AIIMS), Delhi, and the manner in which their treatment can begin.
- Under the National Policy for Rare Diseases, 2021, hundreds of patients — mostly children — are registered with the ‘Digital Portal for Crowdfunding and Voluntary donations for Patients of Rare Diseases’ by the Union Health Ministry.
- However, the government has been unable to fully finance their treatment due to high costs, resource constraints, and competing health priorities.
- The court ordered the panel to explore procurement of therapies and drugs, and the creation of associated logistical framework to administer treatment.
- The High Court has been hearing a batch of petitions by rare disease patients and their caretakers, which contend that medicines and therapies are exorbitantly expensive. If these are not made available, the children’s well-being would be severely jeopardised, the petitions argue.

Legal intervention

On December 2021, the Delhi HC had urged the Centre to look into the matter, saying that patients identified under the National Policy for Rare Diseases cannot be made to suffer due to lack of funds. “Any delay in commencement of their treatment may prove to be fatal and defeat the very purpose for which the above-mentioned policy was created,” it had noted.

The court has heard the case from time to time, issuing various directions to enable treatment of the children and making medicines available to them.

In its latest order, the High Court ordered the National Rare Diseases ‘Committee to take up on an “urgent basis” the immediate requirement of patients to commence the treatment stopped due to lack of funding.

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ECONOMY

RBI Surplus Transfer

News Excerpt

The Union Government has received a substantial fiscal boost as the Reserve Bank of India (RBI) has granted approval for a significant transfer of surplus funds. The surplus transfer for the accounting year 2022-23 totals Rs 87,416 crore, marking a remarkable 188% increase compared to the previous year.

Pre-Connect

Understanding RBI's balance sheet

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RBI's Income	RBI's Expenditure
<ul style="list-style-type: none">• Interest earned from holdings of domestic and foreign securities.• Fees and commissions obtained from its services.• Profits generated from foreign exchange transactions.• Returns received from subsidiaries and associates.	<ul style="list-style-type: none">• Printing of currency notes.• Payment of interest on deposits and borrowings.• Salaries and pensions of staff.• Operational expenses of offices and branches.• Provisions made for contingencies and depreciation.
<ul style="list-style-type: none">• The surplus is the difference between RBI's income and expenditure.• RBI transfers the surplus to the government after setting aside provisions for reserves and retained earnings.• The transfer of surplus follows the guidelines of Section 47 (Allocation of Surplus Profits) of the Reserve Bank of India Act, 1934.• In 2013, a technical Committee of the RBI Board, led by Y H Malegam, reviewed the adequacy of reserves and surplus distribution policy and recommended a higher transfer to the government.	

Factors Responsible for the surge

- Public sector banks and oil marketing companies recorded higher dividends.
- Investments yielded increased earnings, while valuation changes on dollar holdings and revaluation of forex assets, along with adjustments in reserves as per the Bimal Jalan Committee recommendations, also contributed to the surplus.
- The impact of rupee depreciation against the dollar affected the surplus transfer.
- The surplus distribution framework with higher rates resulted in increased payouts.
- Earnings from the sale of foreign exchange and investments in US treasuries were higher.

Implication of the surge

- Offers fiscal relief to the government, particularly in addressing uncertainties in the divestment program and managing fiscal numbers.
- Helps mitigate potential shortfalls in tax buoyancy and other revenue sources.
- Tax buoyancy allows for increased revenue without raising tax rates.
- Provides a fiscal buffer to support budget targets and assists in offsetting potential losses from lower disinvestment, telecom pay-outs, or tax revenues.
- Enhances the government's ability to manage fiscal deficits with relative ease.
- Dividend inflows and a seasonal decrease in currency demand are expected to alleviate frictional liquidity in the near term.
- However, tight liquidity conditions may persist, necessitating the RBI to conduct open market operations worth Rs 1.5 lakh crore in the second half of FY24.

PEPPER IT WITH

Disinvestment, Fiscal Deficits
Rupee depreciation, Forex Assets

Online Gaming Platforms

News Excerpt

Recently, the Central Board of Direct Taxes (CBDT) has implemented fresh tax regulations for online gaming platforms. The objective of these regulations is to provide clarity and establish clear guidelines regarding Tax Deducted at Source (TDS) on earnings derived from online gaming.

Key Highlights of the New Rules

- No TDS on Winnings up to Rs 100:**
 - Online gaming platforms are not required to deduct tax at the source if the net winning amount is below Rs 100.
 - This exemption provides relief for players with smaller winnings.

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- **Taxable Deposits:**
 - Bonus, referral bonus, and incentives provided by online gaming companies are considered taxable deposits.
 - These deposits are subject to tax under Rule 133 of the Income-tax Act.
- **Calculation of Net Winnings:**
 - Net winnings in the online gaming industry are calculated separately for each user account.
 - The total amount across all user accounts associated with an individual is considered for deposit, withdrawal, or balance calculation.
 - Transfers between user accounts under the same online intermediary, belonging to the same user, are not treated as withdrawals or deposits.
 - Withdrawals or deposits between one user's account and another user's account are considered as withdrawals.
- **Valuation of Winnings:**
 - The fair market value is used to determine the valuation of winnings in kind, except when the online gaming intermediary has purchased the winnings before providing them to the user.
 - If the online gaming intermediary manufactures items as winnings, the fair market value is considered.
- **TDS Provision for Online Gaming:**
 - Section 194BA was introduced in the Income-tax Act, 1961, by the Finance Act 2023 to regulate online gaming transactions.
 - Online gaming platforms are required to deduct income tax at a rate of 30% on net winnings from a user's account.
 - TDS is deducted at the time of withdrawal and at the end of the financial year.

Impact of the Move

- Online gamers may experience a greater tax load.
- Professional gamers and streamers could face the consequences, such as potentially higher taxes and the need for more intricate financial management.
- Esports organizations might need to modify their financial models and take into account the tax considerations associated with their revenue streams.
- The financial consequences could lead to a decrease in gaming income.
- Meeting the requirements and comprehending the new tax regulations could pose challenges in terms of compliance.
- There is a chance that players may move to jurisdictions with more favourable tax regulations.

About CBDT

- ❖ It operates as a statutory body under the Central Board of Revenue Act, 1963.
- ❖ It falls within the Department of Revenue under the Ministry of Finance.
- ❖ Its role involves contributing to policy and planning related to direct taxes in India, as well as overseeing the implementation of direct tax laws through the Income Tax Department.
- ❖ Direct taxes encompass income tax, corporation tax, and other similar taxes.

Tax Regulations related to Digital Assets

- ❖ In the Union Budget 2022, the Government of India has made the decision to establish regulations for transactions involving Virtual Digital Assets.
- ❖ Proposed amendments to the Income-tax Act, 1961 aim to regulate investments in cryptocurrencies, NFTs, and other virtual digital assets.
- ❖ Income derived from digital assets will be subject to a 30% tax rate.
- ❖ Transactions involving virtual digital assets will incur a 1% tax deduction at source.
- ❖ Gifts of virtual digital assets will also be liable for taxation.
- ❖ No deductions or exemptions are permitted, and losses from the transfer of such assets cannot be offset against any other income.

PEPPER IT WITH

Tax Deducted at Source (TDS), Central Board of Revenue Act, 1963, Virtual Digital Assets, cryptocurrencies, NFTs.

Evergreening of Loans

News Excerpt

Recently, the Governor of the Reserve Bank of India (RBI) raised concerns regarding the adoption of overly ambitious growth strategies by banks and their involvement in the practice of evergreening loans. The governor stressed the importance of strong corporate governance and highlighted cases where the actual status of stressed loans was concealed.

About Evergreening of Loans

Evergreening loans involve extending new or additional loans to borrowers unable to repay existing loans. The practice aims to hide the true status of non-performing assets or bad loans. It is referred to as zombie lending and can create misleading impressions about asset quality and profitability.

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• **Impact of Evergreening Loans:**

- Creates a false impression of banks' asset quality and profitability.
- Delays the recognition and resolution of stressed assets.
- Undermines credit discipline and increases moral hazard among borrowers.
- Erodes trust and confidence among depositors, investors, and regulators.

- Loans or debt instruments are exchanged between two lenders to avoid classifying them as non-performing assets.
- This manipulation conceals the deteriorating financial condition of the borrower.

Selling and Buying Back Loans



- Good borrowers are convinced to enter into structured deals with stressed borrowers.
- The intention is to camouflage the default of stressed borrowers and maintain the appearance of normalcy.

Structured Deals



- Repayment obligations of borrowers are adjusted using internal or office accounts.
- This tactic masks the borrower's inability to meet their repayment obligations.

Internal Account Adjustments



Approaches Utilized for Evergreening Loans

- Stressed borrowers or related entities receive new loans or loan renewals near the repayment date of previous loans.
- By doing so, the true status of non-performing assets is concealed.

Renewing or Disbursing New Loans



• **Loan Write-Off Vs. Evergreening:**

- Loan Write-Offs:
 - Process of removing bad loans from banks' books after making provisions.
 - Borrowers remain obligated to repay, and banks continue pursuing recovery.
 - Aimed at cleaning up balance sheets and reflecting true financial positions.
 - Banks reduced non-performing assets by Rs 10,09,510 crore (\$123.86 billion) in the last five years through write-offs.
- Evergreening of Loans:
 - Practice of extending new or additional loans to borrowers unable to repay existing loans.
 - Conceals the true status of non-performing assets or bad loans.

RBI initiatives countering Evergreening of loans

- The RBI has advised banks to avoid over-aggressive growth strategies, under pricing or over-pricing of products, and concentration or lack of diversification in deposit or credit profile. These practices can expose banks to higher risks and vulnerabilities.
- **RBI's Support Measures for the Banking Sector:**
 - The RBI has implemented various measures to assist the banking sector, including providing liquidity support and regulatory forbearance.
 - Additionally, the establishment of an asset reconstruction company (ARC) and the introduction of a resolution framework have been initiated.
- **Emphasis on Risk Management and Governance:**
 - The RBI has emphasized that the support measures alone are insufficient if banks do not enhance their risk management and governance practices.
 - It highlights the need for banks to improve their overall risk assessment and governance frameworks.
- **Penalties for Non-Compliance:**
 - Several banks have faced penalties from the RBI for violating norms related to Know Your Customer (KYC), customer grievance redressal, fraud reporting, and other regulations.
 - These penalties serve as a reminder for banks to adhere to regulatory requirements.
- **Supervisory Actions for Governance Lapses:**
 - The RBI has initiated supervisory actions against some large private sector banks for lapses in governance.
 - This indicates the importance of maintaining robust governance practices within the banking sector.

Other measures to control Evergreening of loans

✓ Robust Risk Assessment:

- Financial institutions should adopt robust risk assessment practices to accurately evaluate borrowers' creditworthiness.
- Thorough due diligence, repayment capacity analysis, and assessment of the borrower's business model are essential in identifying potential risks and avoiding the need for evergreening loans.

✓ Transparent Reporting and Disclosure:

- Transparent reporting and disclosure of loan portfolios, including non-performing loans (NPLs) and loan restructuring, are crucial in preventing evergreening of loans.
- Accurate and timely information enables regulators, investors, and stakeholders to assess the financial health of banks and detect any potential evergreening practices.

✓ Asset-Liability Management (ALM):

- Emphasis should be placed on proper asset-liability management (ALM) to address risks arising from maturity mismatches, interest rate fluctuations, and market risks.
- Monitoring and assessing these risks help banks maintain a balanced and sustainable position.

✓ Effective Communication and Media Interaction:

- Banks are advised to promptly engage with the media to counter misinformation or rumors on social media that could cause depositor panic.
- Open and transparent communication helps maintain confidence in the banking system.

✓ Compliance with ESG Norms:

- Banks need to adhere to Environmental, Social, and Governance (ESG) norms, which are increasingly important to investors and stakeholders.
- Adopting sustainable practices, disclosing ESG performance, and aligning lending policies with climate change and social welfare goals are necessary.

✓ Recommendations of P J Nayak Committee:

- The Committee to Review Governance of Boards of Banks suggests imposing penalties, such as cancelling unvested stock options and claw-back of bonuses, on officers involved in significant evergreening.
- The Chairman of the audit committee may be asked to step down from the board in such cases. These measures promote accountability and deter evergreening practices.

Understanding NPAs

NPA refers to the classification of loans or advances that are in default or are in arrears on scheduled payments of principal or interest.

Banks are required to classify non-performing assets into three categories based on the duration of non-performance and the likelihood of recovery:

- ❖ **Sub-standard Assets:** Sub-standard assets are those classified as NPAs for a period less than or equal to 12 months.
- ❖ **Doubtful Assets:** Doubtful assets are assets that have remained non-performing for a period exceeding 12 months.
- ❖ **Loss Assets:** Loss assets are assets that are deemed uncollectible and have little to no hope of recovery. These assets need to be fully written off.

PEPPER IT WITH

Reserve Bank of India (RBI), Stressed loans, ESG (Environmental, Social, and Governance) norms, Asset reconstruction company (ARC)

Yield on Government Securities

News Excerpt

The decreasing yield of the 10-year government security (G-sec) has raised concerns for retail investors regarding their investment approach. Although the Reserve Bank of India (RBI) has provided retail investors access to the government securities market, their involvement has been relatively limited.

Pre-Connect

Understanding Government Securities

- Government securities (G-Secs) are tradeable instruments issued by the Central Government or State Governments to borrow money from the public and finance their fiscal deficit.
- Debt instruments, such as G-Secs, represent a contractual obligation where the issuer agrees to pay the holder a fixed amount known as the principal or face value on a specified date.
- G-Secs can be categorized as short-term (treasury bills- 91-day, 182 day and 364 day) with maturities of less than one year or long-term (government bonds) with maturities of one year or more.

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- The Central Government issues both treasury bills and bonds, while State Governments issue bonds known as State Development Loans (SDLs).
- G-Secs are widely considered risk-free gilt-edged instruments since they carry minimal risk of default.
- Gilt-edged securities are high-grade investment bonds utilized by governments and large corporations to borrow funds.
- The Reserve Bank of India (RBI) conducts Open Market Operations (OMOs) involving the sale or purchase of G-Secs to regulate money supply conditions.
- The RBI sells G-Secs to reduce liquidity in the system, while buying them back is done to inject liquidity into the system.

Types of Government Securities

Treasury Bills (T-bills): T-bills are securities that do not pay interest but are issued at a discount and redeemed at face value upon maturity.	Cash Management Bills (CMBs): Introduced in 2010 by the Government of India, CMBs are short-term instruments used to address temporary cash flow mismatches. They have similar characteristics to T-bills but have maturities of less than 91 days.	Dated G-Secs: Dated G-Secs are securities that have fixed or floating coupon rates paid on the face value. Interest is paid semi-annually, and the tenor of these securities typically ranges from 5 to 40 years.	State Development Loans (SDLs): SDLs are loans raised by state governments from the market. They are dated securities issued through normal auctions, similar to those conducted for the Central Government's dated securities.
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Understanding Bond Yield

- Bond yield represents the return received by an investor on a bond.
- The yield is calculated using the mathematical formula: annual coupon rate divided by the current market price of the bond.
- Price and yield have an inverse relationship: when the bond price increases, the yield decreases, and vice versa.
- A bond is a financial instrument used to borrow money, and it can be issued by a government or a company to raise funds.
- The coupon rate refers to the interest rate paid by bond issuers on the face value of the bond.

Reasons for decline of yield

- ✓ The yield on the benchmark 10-year government security (G-sec) has decreased from 7.4% in early March 2023 to 6.9% in May 2023.
- ✓ This decline in yield is attributed to changes in debt mutual fund taxation and the removal of the benefit of indexation in the calculation of long-term capital gains on debt mutual funds.
- ✓ Currently, the G-sec is trading at approximately 6.96-6.99%.
- ✓ Factors such as changes in debt mutual fund taxation, the Reserve Bank of India's decision on the repo rate, and declining inflation have contributed to the downward movement of government security yields.

Reasons for Low Participation of Retail Investors in G-Secs

- **Limited investor guidance:** Retail investors struggle with the complexities of investing in government bonds and may require assistance from intermediaries to navigate the process effectively.
- **Liquidity challenges:** The G-Sec market lacks sufficient liquidity, making it difficult for retail investors to find buyers in the secondary market when they want to sell their securities. This can lead to investors being unable to liquidate their investments.
- **Complexity of investment:** Retail investors, especially those who lack knowledge in this area, may find the investment process in G-Secs intimidating and may prefer simpler investment options like fixed deposits.
- **Limitations of RBI Retail Direct:** While the RBI Retail Direct platform is useful for informed investors, it may not cater to uninformed participants who require a more straightforward investment process.
- **Low trading volumes:** The secondary market for G-Secs experiences low trading volumes, making it less appealing for retail investors.
- **Exploration of alternative options:** Retail investors may explore alternative investment avenues such as fixed deposits, which offer higher interest rates, or consider other options like new bonds, NCDs (Non-Convertible Debentures), or post office deposit schemes.

PEPPER IT WITH

Inflation, NCDs (Non-Convertible Debentures)
Post office deposit schemes, Open Market Operations

FDI Inflows

News Excerpt

In the fiscal year ending March 2023, India witnessed a significant decline in Foreign Direct Investment (FDI) inflows. Gross FDI inflows in FY23 amounted to USD 71 billion, indicating a 16% decrease compared to the previous fiscal year. This decline marks the first instance of FDI inflows decreasing in the country in the past ten years.

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Pre-ConnectUnderstanding FDI

- FDI is a form of cross-border investment where an investor establishes a lasting interest in a foreign enterprise.
- FDI can take different forms, including acquiring shares, establishing subsidiaries or joint ventures, providing loans, or transferring technology.
- FDI is recognized as a crucial contributor to economic growth. It brings capital, technology, skills, market access, and employment opportunities to the host country.

About India's FDI Pattern

- India has emerged as an appealing destination for foreign direct investment (FDI) due to factors such as its large and expanding domestic market, favorable demographics, political stability, liberalized policy framework, and improved business environment.
- As per the Department for Promotion of Industry and Internal Trade (DPIIT), India has received a total FDI inflow of USD 871.01 billion during the period of April 2000 to June 2022.
- According to the World Investment Report 2022, India holds the 7th position among the top 20 host economies for FDI in 2021.
- In FY22, India witnessed the highest-ever FDI inflows, reaching USD 84.8 billion, which included USD 7.1 billion of FDI equity inflows specifically in the services sector.
- Singapore (27.01%), USA (17.94%), Mauritius (15.98%), the Netherlands (7.86%), and Switzerland (7.31%) have emerged as the top five countries contributing to FDI equity inflows in India.

Challenges related to FDI in India

- ✓ **Taxation and Regulatory Compliance:** Although India has implemented various tax reforms, complexities and uncertainties persist in the tax regime. Foreign investors encounter challenges due to frequent changes in tax laws, multiple layers of taxation, and disputes over tax assessments, which impact compliance and tax planning.
- ✓ **Competition from Other Emerging Markets:** India faces competition from other emerging markets, including China, Vietnam, and Indonesia, in attracting foreign direct investment (FDI). These countries offer competitive advantages such as lower production costs, improved infrastructure, and investor-friendly policies.
- ✓ **Infrastructure Deficit:** Despite ongoing efforts to enhance infrastructure, India still experiences significant gaps in areas like transportation, logistics, power, and telecommunications. Insufficient infrastructure adversely affects the ease of doing business and increases operational costs for foreign investors.

Measures to boost FDI in India

- **Simplify and Streamline Regulatory Processes:** India should simplify and streamline regulatory processes by implementing a single-window clearance system or a digital platform. This will reduce bureaucracy and make it easier for businesses to obtain licenses, permits, and approvals.
- **Improve Infrastructure Development:** Focus on improving infrastructure in sectors like transportation, logistics, power, and digital connectivity. Developing world-class infrastructure facilities and industrial clusters will attract foreign investors seeking efficient and well-connected business environments.
- **Enhance Investor Protection Mechanisms:** Strengthen investor protection mechanisms, including robust enforcement of intellectual property rights (IPR), contract enforcement, and dispute resolution mechanisms. Judicial reforms, specialized commercial courts, and alternative dispute resolution methods can help build investor confidence.
- **Promote Sector-Specific Investment Policies:** Formulate sector-specific investment policies and incentives to attract foreign direct investment (FDI) in key sectors like manufacturing, renewable energy, healthcare, technology, and e-commerce. Tailoring policies to address the unique needs and requirements of each sector will encourage foreign investors to invest in those areas.

PEPPER IT WITH

Foreign Direct Investment (FDI), Department for Promotion of Industry and Internal Trade (DPIIT), World Investment Report, Intellectual property rights.

Economics of Climate Change in India

News Excerpt

In recent months, there have been numerous reports highlighting the impact of extreme weather events on everyday life in India. According to the Global Climate Risk Index 2021, India was ranked 7th among the countries most affected by climate risk events in terms of exposure and vulnerability.

Impact of climate change on India's Macroeconomy

Climate change can have adverse effects on both the supply side (productive potential) and the demand side (consumption and investment) of the economy. It can also create spillover effects across regions and sectors, as well as cross-border impacts and contagion risks:

- **Decreased Agricultural Output:** Climate change can disrupt crop cycles and lead to low agricultural yields due to temperature fluctuations, changing precipitation patterns, pest infestation, soil erosion, water scarcity, and extreme weather events like floods and droughts. This can impact the rural economy, livelihoods, and contribute to inflation in urban areas.
- **Disruption of the Fisheries Sector:** Climate change-induced rise in sea surface temperatures can affect the distribution and behavior of fish species. This can lead to changes in fish availability, composition, and abundance, impacting the livelihoods of fishermen and the fishing industry.
- **Increased Health Costs:** Climate change can amplify the incidence and severity of diseases such as malaria, dengue, cholera, heat stroke, respiratory infections, and mental stress. Vulnerable groups, including children, women, elderly, and the poor, may experience compromised nutrition and well-being. Health costs can reduce disposable income, decrease labour productivity, and increase public expenditure.
- **Infrastructure Damage:** Climate change can cause damage to physical infrastructure such as roads, bridges, railways, ports, airports, power plants, water supply systems, and buildings due to factors like sea-level rise, coastal erosion, landslides, storms, floods, and heatwaves. This can disrupt economic activity, trade, connectivity, and increase maintenance and replacement costs.
- **Decreased Industrial Output:** Climate change can lead to increased operational costs and reduced profitability in the industrial sector. This can result from climate-friendly regulations, reduced utilization of outdated stock, and the need to relocate production processes due to climate-related losses. It is estimated that India could contribute to 34 million out of 80 million global job losses by 2030 due to heat stress-associated productivity decline.
- **Energy Crisis:** Rising temperatures due to climate change can contribute to an increase in India's primary energy demand by 2030. The relationship between energy and climate requires a surge in energy usage to mitigate heat effects, potentially leading to an energy crisis.
- **Impact on Financial Services:** Climate change can create pressure on financial services by increasing credit risk for banks and financial institutions. Climate-related events like floods, hurricanes, or droughts can damage properties, disrupt supply chains, and impact business profitability, potentially resulting in loan defaults and credit losses. It can also increase insurance claims and disrupt travel and hospitality services due to reduced demand, cancellations, and safety concerns.

India's Commitment towards Climate Change Panchamrit:

- ❖ Achieve a non-fossil energy capacity of 500 GW by 2030.
- ❖ Generate 50% of its energy from renewable sources by 2030.
- ❖ Reduce total projected carbon emissions by 1 billion tonnes between now and 2030.
- ❖ Decrease the carbon intensity of the economy by 45% by 2030, compared to 2005 levels.
- ❖ Attain the target of net zero emissions by 2070.

National Action Plan on Climate Change: The plan aims to raise awareness about climate change and its impacts among the public, government agencies, scientists, industries, and communities. It emphasizes the need to take necessary steps to counter the threat of climate change.

Measures to address the situation

- **Enhancing Carbon Sequestration:** India can increase its carbon sequestration potential by expanding forest and tree cover, restoring degraded lands, promoting agroforestry, and adopting low-carbon farming practices. This not only helps offset emissions but also provides additional benefits like biodiversity conservation, soil fertility improvement, water security, livelihood support, and disaster risk reduction.
- **Building Climate Resilience:** To enhance climate resilience, India should strengthen disaster management systems, improve early warning and forecasting capabilities, invest in climate-proof infrastructure, develop climate-smart agriculture practices, improve healthcare services, and empower local communities and institutions.

➤ **Driving India's Green Transportation Revolution:**

Promoting electric vehicles (EVs) requires establishing a robust charging infrastructure network and offering incentives for EV adoption. Introducing innovative public transportation solutions like electric buses, shared mobility services, and smart traffic management systems can reduce congestion and emissions.

➤ **Climate Smart Agriculture:** Encouraging sustainable farming practices such as organic farming, agroforestry, and precision agriculture is essential.

Integrating technology-driven solutions like remote sensing, IoT devices, and AI-based analytics can optimize resource utilization, reduce water consumption, and enhance crop productivity.

PEPPER IT WITH

Global Climate Risk Index 2021, Climate risk events, World Health Organization (WHO), Heat Stress, International Energy Agency (IEA) National Action Plan on Climate Change, Perform, Achieve and Trade (PAT) Initiative, The Pradhan Mantri Ujjwala Yojana

Prepaid Payment Instrument (PPI)

News Excerpt

A committee responsible for reviewing customer service standards for RBI-regulated entities has proposed an extension of the Deposit Insurance and Credit Guarantee Corporation (DICGC) to include Prepaid Payment Instruments (PPIs). This measure aims to provide protection against fraud and unauthorized transactions.

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Understanding PPI

- PPIs are financial instruments that enable various transactions, including the purchase of goods and services, financial services, and remittance facilities, utilizing the stored funds within them.
- PPIs can take the form of cards or digital wallets.
- There are two types of PPIs: Small PPIs and full-KYC (know your customer) PPIs. Small PPIs can be further classified as PPIs up to Rs 10,000 with cash loading capability and PPIs up to Rs 10,000 without cash loading capability.
- PPIs can be loaded or reloaded with funds through cash deposits, debiting a bank account, or using credit and debit cards.
- Cash loading of PPIs is limited to Rs 50,000 per month, considering the overall limit of the respective PPI.
- Banks and non-banks are authorized to issue PPIs upon obtaining approval from the RBI.
- As of November 2022, more than 58 banks have received permission to issue and operate prepaid payment instruments.
- There are currently 33 non-bank PPI issuers as of May 2023.

Understanding DICGC

- DICGC, a subsidiary of the RBI, is responsible for providing deposit insurance to protect depositors' funds.
- The deposit insurance system plays a crucial role in maintaining financial system stability by assuring small depositors that their deposits are protected in case of a bank failure.
- DICGC's deposit insurance coverage extends to all licensed commercial banks, including Local Area Banks (LABs), Payments Banks (PBs), Small Finance Banks (SFBs), Regional Rural Banks (RRBs), and co-operative banks regulated by the RBI.
- DICGC's insurance coverage encompasses various types of deposits, such as savings, fixed, current, and recurring deposits, including accrued interest.
- Each depositor in a bank is insured for a maximum amount of Rs 5 lakh, covering both the principal and interest held by them at the time of the bank's liquidation or failure. Previously, the insurance cover provided by DICGC was Rs 1 lakh, but it was raised to Rs 5 lakh in 2020.
- DICGC does not provide insurance coverage for deposits of foreign governments, central/state governments, inter-bank deposits, deposits of State Land Development Banks with State co-operative banks, any deposits received outside India, or any amount specifically exempted by the corporation with RBI's approval.
- DICGC maintains three funds: the Deposit Insurance Fund, the Credit Guarantee Fund, and the General Fund. The Deposit Insurance Fund and the Credit Guarantee Fund are financed through insurance premiums and guarantee fees and are used for settling claims in their respective areas. The General Fund is utilized to cover the corporation's establishment and administrative expenses.

PEPPER IT WITH

Remittance, Insurance Fund, Regulated Entities, Local Area Banks (LABs), Payments Banks (PBs), Small Finance Banks (SFBs), Regional Rural Banks (RRBs) and co-operative

New GST Compliance Measures

News Excerpt

Recently, the government has reduced the threshold for businesses to generate e-Invoices for Business-to-Business (B2B) transactions from Rs 10 crore to Rs 5 crore. This step aims to combat tax evasion and enhance compliance within the Goods and Services Tax (GST) system. Additionally, the government has introduced the Automated Return Scrutiny Module (ARSM) for GST returns. This backend application is designed for central tax officers to facilitate efficient scrutiny and processing of GST returns.

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Understanding e-invoicing under GST

- e-Invoicing is a system where B2B invoices and other documents are electronically authenticated by the GSTN for use on the GST portal.
- It involves submitting standard invoices on a common e-invoice portal, automating reporting with one-time input of invoice details.
- Each invoice is assigned a unique identification number by the Invoice Registration Portal (IRP), which transfers the information to the GST portal and e-Way Bill portal in real-time.
- The e-Way Bill is a digital compliance mechanism that allows the person responsible for moving goods to upload relevant information before the goods are transported. It facilitates faster movement of goods.
- e-Invoicing eliminates manual data entry when filing returns and generating e-way bills.
- The primary objective of implementing e-invoicing is to enable interoperability across the entire GST ecosystem, as approved by the GST Council.
- It helps pre-populate the return and reduces reconciliation issues for tax authorities.
- The implementation of e-invoicing aims to tackle cases of fake invoices, fraud, and improper claiming of input tax credit.
- Real-time data access provided by e-invoicing helps in curbing tax evasion and reducing frauds.

Automated Return Scrutiny Module

- The Automated Return Scrutiny Module (ARSM) is a component of the ACES-GST backend application, utilizing data analytics to identify potential risks and inconsistencies in GST returns.
- This enables tax officers to examine the GST returns of Center Administered Taxpayers, selected based on the risks identified by the system.
- The module also generates alerts to notify tax officers of any instances of non-compliance that are detected.
- The implementation of the automated return scrutiny module has already begun, starting with the scrutiny of GST returns for the fiscal year 2019-20, using the data already available to tax officers.

Significance of Lowering Thresholds for e-Invoice

- The reduction in the threshold for e-invoicing holds great significance as it extends the compliance requirements to a larger number of businesses, particularly small and medium-sized enterprises, thereby contributing to increased GST revenue collections.
- Additionally, it is anticipated to effectively combat tax evasion, expand the tax base under the GST regime, and furnish tax authorities with additional data to enhance overall compliance.
- By mandating a wider adoption of e-invoicing, the government aims to mitigate mismatch errors and fraudulent practices associated with the creation of counterfeit invoices.

Concerns raised

- The decision to lower the e-invoicing threshold has raised concerns among businesses, particularly small and medium enterprises (SMEs), who may encounter difficulties in adjusting to the new requirements and investing in the necessary technology to comply with e-invoicing standards. This could result in increased compliance costs and place a burden on their cash flows.
- Additionally, there might be challenges related to the capacity and readiness of the GST Network (GSTN) to handle the increased volume of e-invoices generated by a larger number of taxpayers. This could lead to technical issues and delays in invoice generation, potentially impacting the seamless operations of businesses.
- It is important to note that the majority of fraudulent activities occur in B2C (Business to Consumer) transactions, as they do not involve Input Tax Credit (ITC). Currently, e-invoicing is not applicable to B2C transactions.

Way-Forward

- The government has the opportunity to assist small and medium enterprises (SMEs) in embracing the new system by offering training and resources that aid businesses in adhering to the updated regulations.
- Furthermore, measures can be implemented to alleviate apprehensions related to data privacy and security, ensuring that businesses are confident in sharing their data in real-time.
- It is important to note that e-invoicing is specifically applicable to Business-to-Business (B2B) invoices. Therefore, a separate workflow should be established for handling delivery challans, bill of supply, job work, and similar transactions.

PEPPER IT WITH

The Fugitive Economic Offenders Act, 2018
The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015
Prevention of Money Laundering Act, 2002,
e-Way Bill, Input Tax Credit.

INTERNATIONAL RELATIONS

Kosovo-Serbia Conflict

News Excerpt

Recently, there was a confrontation between Serbian demonstrators and NATO peacekeepers in Kosovo, resulting in over 60 people being injured. This incident marks the gravest outbreak of violence witnessed in the area in more than ten years.

Pre-ConnectEthnic Background

- Kosovo is a region with a long history of Serbs and Albanians coexisting, representing distinct ethnicities and religious backgrounds.
- The population of Kosovo consists of approximately 1.8 million people, with Albanians comprising 92% and Serbs constituting only 6%. The remaining residents include Bosniaks, Gorans, Turks, and Roma.
- Serbs residing in Kosovo primarily identify as Eastern Orthodox Christians, whereas the majority of Albanians in the region adhere to the Muslim faith.
- Alongside Serbs and Albanians, other minority groups in Kosovo include Bosnians and Turks.
- In terms of demographics, Serbs make up the majority population in Serbia, while Albanians constitute the majority in Kosovo.

Battle of Kosovo

- Serbian nationalists consider the 1389 Battle of Kosovo, fought between Serbian Prince Lazar Hrebeljanovic and Ottoman Sultan Murad Hudavendigar, as a significant event in their national struggle.
- Kosovo's ethnic Albanian majority perceives Kosovo as their rightful territory and accuses Serbia of occupying and repressing them.

Disintegration of Yugoslavia

- ✓ From 1945 to 1992, the Balkan region comprised a country known as the Socialist Federal Republic of Yugoslavia (SFRY), with Belgrade as its capital. It consisted of Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia. Serbia included the autonomous provinces of Kosovo and Vojvodina.
- ✓ After the collapse of the Soviet Union, Yugoslavia disintegrated, and each republic became an independent country.
- ✓ Slovenia was the first to secede from Yugoslavia in 1991.
- ✓ The late 1980s and early 1990s witnessed a decline in the central government's power in Yugoslavia, accompanied by a resurgence of nationalism.
- ✓ Political leaders exploited nationalist sentiments, which led to the erosion of the shared Yugoslav identity and the rise of fear and mistrust among ethnic groups.
- ✓ In 1998, ethnic Albanian rebels established the Kosovo Liberation Army (KLA) to challenge Serbian rule.

NATO Intervention

- In 1999, NATO intervened in response to Serbia's brutal actions in Kosovo, initiating a 78-day air campaign against Kosovo and Serbia.
- As a result, Serbia agreed to withdraw its forces from Kosovo.
- The intervention allowed for the return of Albanian refugees to Kosovo but also led to the displacement of many Serbs who feared retaliation.
- In June 1999, Kosovo came under international administration, with its ultimate status remaining unresolved.
- The United Nations' tribunal indicted several Serbian leaders, including President Milošević, for war crimes.

Current Status of Kosovo

- 🚩 Despite Kosovo declaring independence in 2008, Serbia maintains that it is an inseparable part of its own territory.

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- Nations like India, China, and Russia do not acknowledge Kosovo as an independent country, whereas the United States, most European Union countries, Japan, and Australia recognize its independence.
- Presently, 99 out of the 193 United Nations (UN) member countries have officially recognized Kosovo as an independent nation.

India's Stand on Kosovo

- India asserts that Kosovo does not meet the three principles necessary for recognition: a clearly defined territory, a duly constituted government accepted by the people, and effective control over a governed area.
- India has objected to Kosovo's participation in international organizations like UNESCO, the Apostille Convention, the Convention for the Pacific Settlement of International Disputes, and the Egmont Group of Financial Intelligence Units.
- India's refusal to recognize Kosovo stems from its commitment to uphold the sovereignty and territorial integrity of Serbia, with whom it maintains a longstanding relationship.

PEPPER IT WITH

World War II, United Nations, Soviet Union, North Atlantic Treaty Organisation

India and UN Peacekeeping Forces

News Excerpt

Recently, Indian Army observed the 75th International Day of United Nations Peacekeepers. On the occasion, India announced plans to conduct two initiatives in 2023 aimed at training women personnel from South East Asia, as part of their collaboration with ASEAN in the defence sector.

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About UN Peacekeeping

- UN Peacekeeping is a vital tool utilized by the United Nations to facilitate the transition from conflict to peace in countries.
- It involves deploying military, police, and civilian personnel to regions affected by conflicts or political instability.
- The primary objective is to foster peace and security, protect civilians, and assist in restoring stable governance structures.
- UN Peacekeeping brings together various entities, including the UN General Assembly, UN Security Council, Secretariat, troop and police contributors, and host governments, to collectively work towards international peace and security.

First Mission - United Nations Truce Supervision Organization (UNTSO):

- The first UN peacekeeping mission was established in May 1948.
- The UN Security Council authorized the deployment of UN military observers to the Middle East, forming the United Nations Truce Supervision Organization (UNTSO).
- The mission aimed to monitor the Armistice Agreement between Israel and its Arab neighbors.

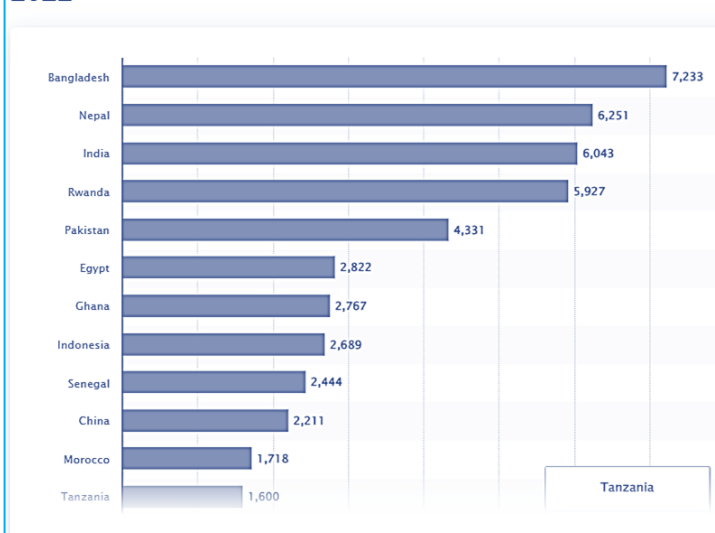
Mandates:

- UN Peacekeeping mandates vary from operation to operation, but typically encompass the following elements:
- Monitoring ceasefires, peace agreements, and security arrangements.
- Protecting civilians, particularly those at risk of harm.
- Facilitating political dialogue, reconciliation, and supporting elections.
- Establishing rule of law, security institutions, and promoting human rights.
- Delivering humanitarian aid, supporting refugee reintegration, and promoting environmental sustainability.

Principles:

- Consent of the Parties:** Peacekeeping operations require the consent of the main parties involved in the conflict. Without consent, a peacekeeping operation risks becoming involved in the conflict and deviating from its peacekeeping role.

Top 10 contributors of troops to United Nations peace 2022



CURRENT CONNECT- JUNE- 23

- **Impartiality:** Peacekeepers must maintain impartiality in their interactions with the conflict parties. Impartiality does not imply neutrality; peacekeepers actively carry out their mandate and uphold international norms.
- **Non-use of Force except in self-defense and defense of the mandate:** Peacekeeping operations should refrain from using force, except when necessary for self-defense and protection of their mandate. "Robust" peacekeeping allows the use of force with Security Council authorization and consent from the host nation and involved parties.

Achievements:

- ✚ Since its establishment in 1948, UN Peacekeeping has played a crucial role in ending conflicts and promoting reconciliation in numerous countries.
- ✚ Successful peacekeeping missions have been conducted in Cambodia, El Salvador, Mozambique, and Namibia.
- ✚ These operations have contributed significantly to restoring stability, facilitating the transition to democratic governance, and fostering economic development.

India-ASEAN Initiative for Women in UNPK operations

- ❖ The 'India-ASEAN Initiative for women in UNPK operations' is a collaborative effort between India and the Association of Southeast Asian Nations (ASEAN) aimed at promoting the involvement of women in UNPK operations.
- ❖ The initiative focuses on providing training and support to women personnel from ASEAN member-states who are interested in serving as peacekeepers.
- ❖ India has announced two specific initiatives under this program:
 - Specialized courses at the Centre for United Nations Peacekeeping (CUNPK) in New Delhi. These courses will deliver targeted training in peacekeeping operations to women peacekeepers from ASEAN countries, equipping them with the necessary skills and knowledge to effectively contribute to UNPK missions.
 - Table Top Exercise for women officers from ASEAN. This exercise will simulate various scenarios and challenges faced by UN peacekeepers, allowing participants to enhance their understanding and preparedness for UNPK operations.

India's Contributions in UN Peacekeeping

Troop Contribution:

- India has a notable history of contributing to UN Peacekeeping operations as one of the largest troop-contributing countries.
- They have deployed soldiers, medical personnel, and engineers to various peacekeeping missions worldwide.
- India has contributed around 275,000 troops to peacekeeping missions thus far.

Casualties: Indian Army soldiers have made significant sacrifices while serving in UN Peacekeeping Missions, with 179 soldiers losing their lives in the line of duty.

Training and Infrastructure:

- The Indian Army has established the Centre for United Nations Peacekeeping (CUNPK) in New Delhi.
- This center provides specialized training for over 12,000 troops annually in peacekeeping operations.
- CUNPK hosts national and international courses for potential peacekeepers and trainers, playing a vital role in sharing best practices and enhancing the capacity of peacekeepers.

PEPPER IT WITH

Association of Southeast Asian Nations (ASEAN), UN Security Council

Women in Peacekeeping:

- India has taken proactive measures to promote gender equality in peacekeeping operations.
- They have deployed Female Engagement Teams in the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo and the United Nations Interim Security Force for Abyei, which constitutes the second-largest women contingent after Liberia.
- India has also deployed Women Military Police in the United Nations Disengagement Observer Force, as well as women staff officers and military observers in various missions.

India-Singapore Ties

News Excerpt

Recently, The Union Minister of Education visited Singapore in order to enhance current connections and expanding bilateral engagement in education and skill development.

Different Shades of India-Singapore ties

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Background:

- The historical ties between India and Singapore span centuries, characterized by strong commercial, cultural, and people-to-people connections.
- The modern relationship can be traced back to Sir Stamford Raffles, who established a trading station in Singapore in 1819, leading to its development as a crown colony governed from Kolkata until 1867.
- India was one of the first countries to recognize Singapore's independence in 1965.

Trade and Economic Cooperation:

- Singapore is a significant trade and investment partner for India within the ASEAN region, accounting for 27.3% of India's overall trade with ASEAN in 2021-22.
- It is also the leading source of Foreign Direct Investment (FDI) into India, with a total investment of approximately 136.653 billion over the past two decades, representing nearly 23% of India's total FDI inflows.
- The Comprehensive Economic Cooperation Agreement (CECA) between India and Singapore was signed in 2005, further facilitating trade and economic cooperation.
- Initiatives such as the India-Singapore Business Forum and the India-Singapore CEOs Forum have been established to promote trade and investment between the two countries.
- The integration of India's Unified Payments Interface (UPI) and Singapore's PayNow in February 2023 enables faster remittances between the two nations.

**Defence and Security Cooperation:**

- India and Singapore share common concerns about regional stability and maritime security in the Indo-Pacific region.
- Their relationship was elevated to a Strategic Partnership in 2015, coinciding with the 50th anniversary of diplomatic relations.
- Agreements such as the Defence Cooperation Agreement (2003) and the Naval Cooperation Agreement (2017) have been signed to enhance defence ties.

Military Exercises:

- Navy: SIMBEX
- Air Force: SINDEK
- Army: Bold Kurukshetra

Education, Science, and Technology Cooperation:

- The DST-CII India-Singapore Technology Summit, held annually, showcases collaboration between the two countries in areas such as AI, IoT, fintech, healthcare, biotech, smart manufacturing, green mobility, logistics, sustainable urban development, etc.
- ISRO launched Singapore's first indigenously built micro-satellite in 2011.
- Singapore expresses interest in collaborating with India on digital public infrastructure and integrating Singapore's 'Proxtera' with India's Open Network for Digital Commerce (ONDC).

Cultural and People-to-People Ties:

- Both nations celebrate a rich heritage of cultural diversity, linguistic affinity, and religious harmony.
- Ethnic Indians make up about 9.1% of Singapore's resident population, contributing significantly to its economic development, social fabric, and cultural diversity.
- The ASEAN-India Pravasi Bharatiya Divas (PBD) held in Singapore in 2018 marked 25 years of ASEAN-India Partnership under the theme "Ancient Route, New Journey."

Cooperation in Infrastructure Development:

- Singapore's expertise in infrastructure development, smart cities, and urban planning aligns with India's goals of sustainable development and building smart cities.
- Singaporean companies actively participate in infrastructure projects in India, including the development of industrial parks, airports, and urban infrastructure.

IPEF

News Excerpt

The second Ministerial Meeting of the Indo-Pacific Economic Framework for Prosperity (IPEF) was recently held in the United States, highlighting the substantial progress achieved in promoting economic collaboration among partner nations in the Indo-Pacific region.

About IPEF

The Indo-Pacific Economic Framework for Prosperity (IPEF) is a US-led initiative aimed at strengthening economic partnerships among participating countries in the Indo-Pacific region. Its goal is to promote resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness.

Launch and Members: IPEF was jointly launched by the USA and other partner countries in the Indo-Pacific region on May 23, 2022, in Tokyo. *The participating countries include Australia, Brunei, Fiji, India, Indonesia, Japan, South Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, United States, and Vietnam.*

Pillars of IPEF:**Fair and resilient trade (Pillar I):**

- Focuses on enhancing trade engagement among IPEF partner countries.
- Aims to promote economic growth, peace, and prosperity in the region.
- India has joined Pillars II to IV of IPEF while having an observer status in Pillar I.

Supply-chain resilience (Pillar II):

- Seeks to make supply chains more resilient, robust, and well-integrated.
- Emphasizes crisis response measures and cooperation to mitigate disruptions.
- Focuses on improving logistics, connectivity, and investments in critical sectors.
- Aims to enhance worker roles through upskilling and reskilling initiatives.

Clean energy, decarbonization and infrastructure (Pillar III):

- Aims to advance cooperation on clean energy and climate-friendly technologies.
- Focuses on research, development, commercialization, and deployment of clean energy.
- Encourages investment in climate-related projects in the Indo-Pacific region.

Taxation and Anti-corruption (Pillar IV):

- Focuses on implementing effective anti-corruption and tax measures.
- Highlights India's strong steps in improving legislative and administrative frameworks to combat corruption.

Key Highlights of the meeting**➤ IPEF Supply Chain Agreement:**

- The meeting announced the successful conclusion of negotiations for an international IPEF Supply Chain Agreement.
- This agreement, under Pillar II of the framework, aims to enhance the resilience, efficiency, productivity, sustainability, transparency, diversification, security, fairness, and inclusivity of participating countries' supply chains.

➤ Progress in Other Pillars:

- Significant progress was reported under the other pillars of IPEF.
- Pillar I: Fair and Resilient Trade, focused on promoting fair and resilient trade, showed positive developments.
- Pillar III: Infrastructure, Clean Energy, and Decarbonization, aimed at advancing clean energy and decarbonization efforts, showcased encouraging progress.
- Pillar IV: Tax and Anti-Corruption, addressing tax measures and anti-corruption initiatives, reported notable achievements.

➤ Regional Hydrogen Initiative

- The meeting witnessed the introduction of a regional hydrogen initiative by some IPEF partners.
- This initiative, under Pillar III, aims to facilitate the widespread deployment of renewable and low-carbon hydrogen and its derivatives in the region.
- The focus is on promoting sustainable and environmentally friendly hydrogen-based solutions.

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India's G20 Presidency And Disaster Management

News Excerpt

India under its Presidency of the G20, hosted the inaugural meeting of the G20 Disaster Risk Reduction Working Group (DRR WG).

Key Highlights of the meeting

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- **Call for Social Protection System:** The G20 Disaster Risk Resilience Working Group has urged governments to establish a social protection system as an effective and preferred instrument for disaster risk financing.
- **Emphasis on New-Age Social Protection Systems:** The working group emphasized the importance of modern Social Protection Systems that focus on investing in local risk resilience to mitigate, prepare for, and recover from disasters.
- **Five Priorities Outlined:**
 - Global coverage of Early Warning Systems: The group prioritized achieving global coverage of Early Warning Systems to enhance preparedness and response to disasters.
 - Increased commitment to infrastructure resilience: There was a strong emphasis on increasing commitment to making infrastructure systems more resilient against disasters.
 - Strengthened national financial frameworks for DRR: The group highlighted the need for robust national financial frameworks that support Disaster Risk Reduction efforts.
 - Enhanced national and global disaster response system: The working group called for strengthening both national and global disaster response systems to effectively address emergencies.
 - Promoting ecosystems-based approaches to DRR: The group advocated for the wider application of ecosystems-based approaches to Disaster Risk Reduction.
- **Objectives and Impact:** The G20 DRR WG aimed to consider the mid-term review of the Sendai Framework, foster multilateral cooperation at all levels, and provide insights for future global policies and initiatives concerning Disaster Risk Reduction.

Need for Creating a Collective G20 Framework for Disaster Risk Reduction

- The G20 nations, with a population of 4.7 billion, face significant exposure, risk from asset concentration, and vulnerability to natural disasters. In the current World Risk Index, four G20 nations are among the top 10 most vulnerable countries.
- The G20 countries collectively experience an estimated annual average loss of USD 218 billion, which amounts to 9% of their average annual investment in infrastructure. These losses highlight the need for effective disaster risk reduction measures.
- Implementing disaster risk reduction measures can play a crucial role in mitigating and preventing such substantial losses. By proactively addressing vulnerabilities and strengthening resilience, the G20 nations can reduce the impact of natural disasters and safeguard their populations and assets.

Strategies for Reducing Disaster Risk

- **Better Economic and Urban Development for Risk Reduction:**
 - The primary approach to reducing risk involves diminishing vulnerability and exposure by implementing improved economic and urban development choices and practices, safeguarding the environment, reducing poverty and inequality, among other measures.
 - An example of this is the effective implementation of flood risk management strategies in India, which can aid in mitigating and managing extreme weather conditions.
- **Reimagining Financing for Disaster Risk Reduction:**
 - There is a need to reconsider the financing methods for disaster risk reduction. Reliance solely on government budgets may be limited due to a country's fiscal position.
 - Exploring innovative financing tools, such as establishing reserve funds, dedicated lines of credit, and leveraging global resources, should be considered.
- **Resilient Infrastructure and Additional Financing:**
 - Infrastructure projects funded by public revenues, such as roads, railways, airports, and electricity lines, should be designed to withstand disasters and may require additional funding.
 - Financing mechanisms that account for the social benefits of resilient infrastructure should be explored to meet this additional funding requirement.

➤ Addressing Extensive and Intensive Risk:

- Differential strategies need to be developed to address extensive risk (frequent but moderate impacts) and intensive risk (low frequency and high impact events).
- Extensive events, including heatwaves, lightning, local floods, and landslides, cumulatively result in substantial losses. Implementing targeted approaches to reducing losses from extensive risk events can yield positive outcomes in the short to medium term.

➤ Multi-tiered and Multi-sectoral Approach:

- Disaster risk reduction should be viewed as a multi-tiered and multi-sectoral effort.
- By integrating efforts vertically from the local to sub-national to national to global levels and horizontally across sectors, readiness to manage unforeseen risks can be enhanced.
- The G20 can play a role in developing such strategies, recognizing the interconnectedness and interdependence of the world.

Way-Forward

- The G20 should encourage collaboration and coordination among its members and other stakeholders concerning early warning systems, disaster-resilient infrastructure, financial frameworks, and response systems for disaster risk reduction.
- Efforts should be made to promote innovation and research in disaster risk reduction, with a particular focus on leveraging technology, data, and ecosystems-based approaches.
- It is essential to align disaster risk reduction endeavours with the 2030 Agenda for Sustainable Development, the Paris Agreement on Climate Change, and the New Urban Agenda. Ensuring that no one is left behind should be a priority in these efforts.
- The G20 Working Group on Disaster Risk Reduction provides an opportunity for the G20 to assume a leadership role in implementing the Sendai framework over the next seven years.

PEPPER IT WITH

Coalition for Disaster Resilient Infrastructure Society (CDRIS) National Disaster Management Plan (NDMP) Sendai Framework for Disaster Risk Reduction 2015-2030 The Climate Risk and Early Warning Systems (CREWS)

Reforms in the Bretton Woods system

News Excerpt

Recently, the UN Secretary-General emphasized the need for reforms in the United Nations Security Council (UNSC) and Bretton Woods Institutions. The comment is significant as the global community was grappling with economic shocks resulting from the Covid-19 pandemic and the ongoing Russia-Ukraine Conflict.

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Pre-Connect

- The Bretton Woods system was established in 1944 during the Bretton Woods Conference in New Hampshire, USA.
- Its purpose was to promote stability and cooperation in international monetary affairs following World War II.
- The system resulted in the creation of two significant organizations: the International Monetary Fund (IMF) and the World Bank.
- Although the Bretton Woods System was dissolved in the 1970s, the IMF and World Bank, known as the Bretton Woods institutions, have continued to play vital roles in facilitating international currency exchange.

Need for Reforms

- While the IMF and World Bank initially experienced success during their first 50 years, they have faced challenges in recent times due to the re-emergence of issues such as rising inequality, financial instability, and protectionism.
- The current global landscape, characterized by the threat of climate change, ecological stress, increased disasters, and a more interconnected world with new challenges like cyber-security and pandemics, necessitates the establishment of a new international financial architecture.
- Concerns have been raised regarding biases in fund allocation and the lack of regulation for Special Drawing Rights (SDRs). Notably, the IMF allocated a substantial amount of USD 650 billion in SDRs during the pandemic.
- The G7 countries, with a population of 772 million people, received a significant share of USD 280 billion, whereas the African continent, with a population of 1.3 billion people, received only USD 34 billion.

Reforming the UNSC

- ❖ It is crucial to achieve equitable representation for all regions, including Africa, and to decentralize power and authority. This would enable nations from diverse regions to express their concerns regarding peace and democracy within their countries, resulting in more representative and democratic decision-making.
- ❖ The emphasis should be on addressing global challenges rather than upholding the privileges of the P5 nations.
- ❖ Immediate action is necessary to rebalance power dynamics between the P5 and the rest of the world, ensuring a more democratic and legitimate governance structure for the United Nations Security Council (UNSC) concerning international peace and security.
- ❖ The Intergovernmental Negotiation (IGN) process, responsible for discussing UNSC reform, should undergo revision and revitalization, with the aim of avoiding procedural tactics that impede progress.

Measures to address the Issue

- ✓ The need for reshaping and revitalizing three global institutions, namely the IMF, WBG, and WTO, has become evident.
- ✓ The IMF will undergo changes, focusing on macroeconomic policy and financial stability. This includes implementing stricter surveillance of advanced economies and their impact on global crises.
- ✓ The restructured WBG will prioritize sustainability, shared prosperity, and effective utilization of private capital. It will also collaborate with other entities to tackle global challenges and serve as a wholesaler of finance.
- ✓ There is a necessity for a stronger WTO to ensure fair trade, expedite dispute resolution, and swiftly respond to emergencies.
- ✓ The global system should incorporate more automatic and rule-based financing mechanisms to minimize delays and prevent political influences.
- ✓ Regular calibrated issuance of Special Drawing Rights (SDRs), implementation of global pollution taxes, and financial transaction taxes are needed.
- ✓ Establishing a well-structured G-20 could offer comprehensive guidance to the Bretton Woods system and its interactions with other institutions.

PEPPER IT WITH

IGN (Intergovernmental Negotiation) process, Special Drawing Rights (SDRs), UNSC

Outer Space Treaty

News Excerpt

The United Nations (UN) has issued a policy brief titled "For All Humanity — The Future of Outer Space Governance," proposing the creation of a fresh treaty that would guarantee peace, security, and the prevention of an arms race in outer space.

Pre-Connect

Understanding Outer Space

- Outer space, also known as space or celestial space, encompasses the expansive region beyond Earth's atmosphere and between celestial bodies.
- It is a vacuum that exists beyond the Earth's atmospheric boundaries and extends boundlessly throughout the universe.
- Outer space is distinguished by its remarkably low density and pressure, devoid of air and other atmospheric components.

Key Highlights

➤ Increasing Satellite Launches:

- Over the past decade, there has been a remarkable surge in satellite launches, fueled by participation from both the government and private sectors. The number of new launches increased from 210 in 2013 to 600 in 2019, further rising to 1,200 in 2020 and 2,470 in 2022.
- Leading countries such as the United States, China, India, and Japan are at the forefront of space activities, encompassing manned missions, lunar exploration, and resource exploitation.
 - NASA, through its Artemis mission, aims to accomplish the historic feat of landing the first woman and the next man on the Moon.

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- Celestial bodies like the Moon (with its rich deposits of helium-3, rare on Earth), asteroids (abundant in valuable metals such as platinum, nickel, and cobalt), and planets present attractive opportunities for countries.

Out Space Treaty, 1967				Treaties and Principles guiding Outer Space
<ul style="list-style-type: none"> The Outer Space Treaty provides the basic framework on international space law, including the following principles: Outer Space is for benefit of all mankind. It is free for exploration and use and is not subject to any claim of sovereignty. No state can place any from of weapon of mass destruction in orbit or on a celestial bodies. All celestial bodies shall be used for peaceful purposes. • Astronauts are envoys of Mankind State held ultimate responsibility for its national space activities done by any sector. State are liable for damage caused by their space objects and should avoid harmful contamination of space and celestial bodies. Treaty act as a foundation of four other treaties which are <ul style="list-style-type: none"> The "Rescue Agreement" 1968 The "Liability Convention" 1972 The "Registration Convention 1976 The "Moon Agreement" 1984 				Principles of Space Exploration
				<ul style="list-style-type: none"> The "Declaration of Legal Principles"- Governing the Activities of States in the Exploration and Uses of Outer Space The "Broadcasting Principles". Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting The "Remote Sensing Principles". Relating to Remote Sensing of the Earth from Outer Space The "Nuclear Power Sources Principles". Relevant to the Use of Nuclear Power Sources in Outer Space The "Benefits Declaration"- International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries
Rescue Agreement 1968 <ul style="list-style-type: none"> Based on Article 5 and 8 of the Outer Space Treaty States have to take all possible steps to rescue and assist astronauts in distress and promptly return them to the launching State Other State upon request should also provide assistance to launching States in recovering space objects that return to Earth outside the territory of the Launching State. 	Liability Convention 1972 <ul style="list-style-type: none"> Based on the Article 7 of the Outer Space Treaty It mandates that State shall be liable to pay for compensation if its space objects cause. <ul style="list-style-type: none"> Damage on earth surface Damage an Aircraft Damages due to it a faults. It also provides for procedures for the settlement of claims for damages 	Registration Convention 1976 <ul style="list-style-type: none"> Address the desire of the States for a mechanism that assist in the identification of space objects It addresses issues relating to States Parties responsibilities concerning their space object 	Moon Agreement 1984 <ul style="list-style-type: none"> It reaffirms Outer Space Treaty that the Moon and other celestial bodies, should be used exclusively for <ul style="list-style-type: none"> peaceful purposes. It mandates that the UN should be informed of the location and purpose of any station established on Moon Moon and its natural resources are the common heritage of mankind and hence its exploitation should be govern by international law. 	

➤ **Lack of International Framework:**

- There is currently an absence of an internationally agreed framework pertaining to space resource exploration, exploitation, and utilization.
- The policy brief emphasizes the need to establish mechanisms that facilitate the implementation of space resource activities while addressing jurisdiction, control, liability, and responsibility for environmental pollution.

➤ **Coordination and Space Traffic Management:**

- The coordination of space traffic is fragmented, with varying standards and practices employed by different national and regional entities.
- This lack of coordination poses challenges, particularly for countries with limited space capabilities.

➤ **Space Debris and Environmental Concerns:**

- The proliferation of space debris is a significant concern, as thousands of objects pose threats to operational spacecraft.
- The UN highlights the importance of addressing legal considerations related to jurisdiction, control, liability, and responsibility for environmental pollution caused by space debris. Although technology for space debris removal is being developed, the legal aspects require attention.

Way Forward

➤ **New Treaty for Peace and Security:**

- The UN recommends negotiating and developing a new treaty to ensure peace, security, and prevent an arms race in outer space.
- This treaty would establish international norms, rules, and principles to address emerging threats and promote responsible space activities.

PEPPER IT WITH

Space Debris, Artemis, The
Registration Convention
1976, Rescue Agreement
1968

➤ **Coordinated Space Situational Awareness:**

- Member states are urged to establish an effective framework for coordinating space situational awareness, space object maneuvers, and space events.
- Such coordination will enhance the safety and security of space operations.

➤ **Space Debris Removal Framework:**

- The UN calls for the development of norms and principles for the removal of space debris, taking into account both legal and scientific aspects.

➤ **Framework for Sustainable Space Resource Utilization:**

- An effective framework is recommended for the sustainable exploration, exploitation, and utilization of space resources, particularly on the Moon and other celestial bodies.

ENVIRONMENT

Biodiversity Management Committee

News Excerpt

Patancheru mandal was adjudged the best functional Biodiversity Management Committee (BMC) of Telangana for 'excellent performance' in biodiversity conservation and management.

Pre-Connect

- BMC is constituted by every local self-governing institution in rural and urban areas, under the provisions of the Biological Biodiversity Act (BDA) 2002.
- Under Section 62 of BDA, Biological Diversity Rule, 2004 was released and Rule 22 states to establish BMC.
- BMC shall be responsible to maintain and validate the People's Biodiversity Registers (PBR).
- PBR contains comprehensive information on the availability and knowledge of local biological resources, their medicinal use, and the traditional knowledge associated with them.
- BDA, 2002 is intended to achieve the objectives of the Convention on biological diversity (CBD).
- The Act has a unique system of governing access and benefit sharing through the NBA, SBBs and BMCs formed at different levels.
- BDA and Rules 2004 provide for regulated access to bio-resources for commercial utilisation and **fair and equitable sharing of benefits in India**, at the grassroots level, it is being ensured by the BMC.

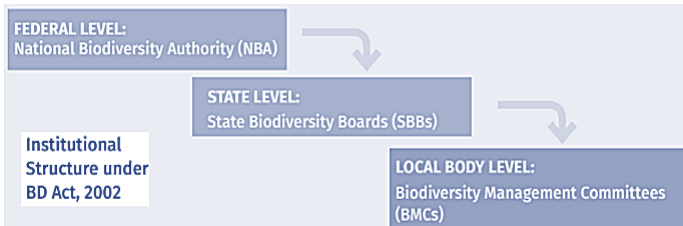
People's Biodiversity Registers (PBR)

- People's Biodiversity Registers (PBR) and Biodiversity Management Committees (BMC) are two important components of the biodiversity conservation framework in India.
- PBRs are prepared at the local level, usually at the level of a village or a group of villages, the purpose of a PBR is to document and safeguard the traditional knowledge and biodiversity-related practices of local communities.

Issues Pertaining to BMCs

- ✓ **Limited awareness and capacity:** Many BMC members, especially in rural areas, may have limited awareness about biodiversity conservation and management. They may lack adequate knowledge, skills, and training to effectively carry out their roles and responsibilities.
- ✓ **Lack of resources:** BMCs

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- ❖ The Convention on Biological Diversity (CBD) was adopted at the Rio Earth Summit in 1992.
- ❖ The internationally binding agreement was signed by 198 countries including India.
- ❖ CBD is based on three-fold objectives-
 - Conservation of biological diversity
 - Sustainable use of its components
 - Fair and equitable sharing of benefits arising out of utilisation of genetic resources



often face resource constraints, including financial resources, technical support, and infrastructure. Limited funding can impede their ability to implement conservation projects, conduct research, and carry out awareness campaigns.

- ✓ **Access to technical expertise:** Technical experts and equipment's are vital for effective biodiversity management, but many of BMC have deficit of finances which undermine the scope of technical instruction.
- ✓ **Limited stakeholder participation:** The active involvement and participation of local communities, indigenous peoples, and other stakeholders are crucial for successful biodiversity management. However, language barriers, cultural differences, and conflicting interests may overshadow the decision-making processes.
- ✓ **Enforcement and compliance:** Lack of awareness, weak enforcement mechanisms, and limited capacity for monitoring and compliance may hinder effective implementation of conservation measures. Strengthening enforcement mechanisms and promoting compliance through awareness and education campaigns are essential.

Positive Outcomes of BMC

- BMCs provide a platform for local communities, indigenous peoples, and other stakeholders to actively participate in biodiversity conservation and management.
- BMCs provides decision-making processes and ownership of biological resources to grass root people. This engagement fosters a sense of responsibility and pride among community members, leading to increased commitment and effective management practices.
- BMCs provide a space for the documentation, preservation, and promotion of traditional ecological knowledge related to biodiversity. Therefore, it helps in safeguarding indigenous knowledge systems.
- BMCs play a crucial role in promoting sustainable resource use and livelihoods that are dependent on biodiversity.
- BMCs play a crucial role in raising awareness like educational campaigns, workshops, and training programs to enhance understanding and knowledge about biodiversity and its value.
- BMCs can collaborate with relevant authorities to ensure that biodiversity conservation considerations are integrated into local development plans, policies, and regulations.

Analytica

- ✚ The relationship between BMCs and PBRs is symbiotic.
- ✚ BMCs can support the development and maintenance of PBRs by facilitating community participation, providing resources and support, and integrating PBR data into their decision-making processes.
- ✚ PBRs, in turn, provide valuable information to BMCs for evidence-based decision-making, policy development, and sustainable development planning.
- ✚ They contribute to the conservation and management of biodiversity by capturing and disseminating traditional knowledge, which can guide sustainable resource use and conservation practices.
- ✚ BMCs and PBRs align with broader biodiversity conservation goals and international frameworks such as the Convention on Biological Diversity (CBD).
- ✚ BMC and PBR collaboration may enhance community engagement, strengthens biodiversity governance, and contributes to the preservation and sustainable management of biodiversity at the grassroots level.

Way Forward

- ⇒ Under the 73rd constitutional amendment act the operational aspects of BMCs and PBRs are to be Constitutionalized and legalised at grass root level in a clear defined way, so that the guiding provision would not be curtailed by respective State actors.
- ⇒ Role of PBR should widen as it would help to trace how habitats are changing, and to understand the fragile parts of forests. India is land of biological and cultural diversity. Conservation of both could be achieved under the expanded version of PBR.
- ⇒ A multi-faceted approach involving capacity building, stakeholder engagement, policy support, and adequate resources are necessary to empower BMCs and conservation biodiversity at the local level.

Global Greenhouse Gas (GHG) Watch

News Excerpt

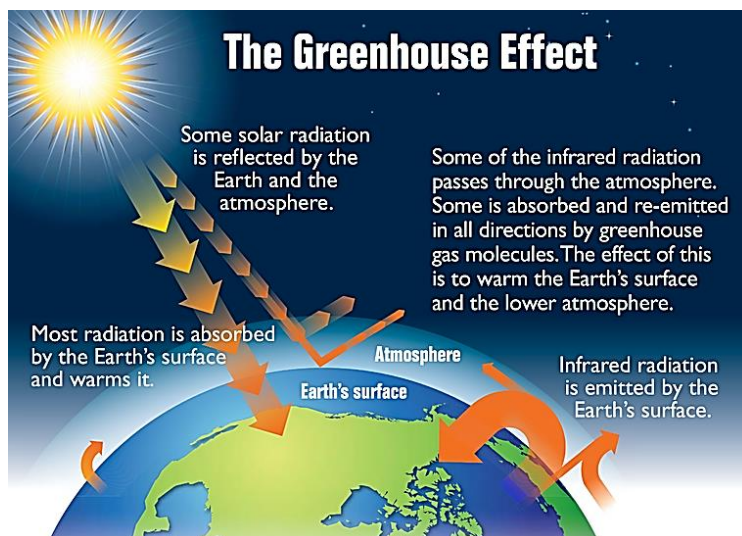
World Meteorological Congress approves global GHG watch to fill critical information gaps on heat-trapping gases fueling temperature increases.

Pre-Connect

GHGs are gases in the Earth's atmosphere which lead to greenhouse effect, leading to global warming and climate change. The primary GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases.

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- **Carbon Dioxide (CO₂)**: It is released through the burning of fossil fuels (such as coal, oil, and natural gas), deforestation, and industrial processes. These activities release CO₂ into the atmosphere, contributing to the increase in atmospheric concentrations.
- **Methane (CH₄)**: It is emitted during the production and transport of coal, oil, and natural gas. Other significant sources include livestock and paddy cultivation practices including the decay of organic waste in landfills.
- **Nitrous Oxide (N₂O)**: It is released from agricultural and industrial activities, including the use of nitrogen-based fertilizers, combustion of fossil fuels, and certain industrial processes.
- **Fluorinated Gases**: These synthetic gases are primarily used in industrial applications, such as refrigeration, air conditioning, and electronics manufacturing. They have a much higher heat-trapping potential compared to other GHGs.
- **Natural reasons**: GHGs are released through human activities and natural processes like- volcanic eruptions and decomposition.



About GHG Watch

The GHG watch will consist of four main components:

- A comprehensive, sustained, global set of surface-based and satellite-based observations of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) concentrations, total column amounts, partial column amounts, vertical profiles and fluxes and supporting meteorological, oceanic, and terrestrial variables, internationally exchanged as rapidly as possible, pending capabilities and agreements with the system operators.
- Prior estimates of the GHG emissions based on activity data and process-based models.
- A set of global high-resolution Earth System models representing GHG cycles.
- Associated with the models, data assimilation systems optimally combine the observations with model calculations to generate products of higher accuracy.

Reasons Responsible for Existing Information Gap

The information gap regarding greenhouse gases (GHGs) arises due to various reasons:

- ✓ Monitoring GHG emissions and concentrations across the globe requires a **vast network of sensors** and data collection systems. However, not all regions have **comprehensive monitoring infrastructure**, resulting in gaps in data coverage.
- ✓ Different countries and organizations may have **varying methodologies and standards for collecting** and reporting GHG data. **Inconsistent reporting practices** make it challenging to compare and integrate information from different sources.
- ✓ GHG emissions come from diverse sources such as energy production, industrial processes, agriculture, and land-use changes. **Quantifying emissions accurately from each source is complex**, and some emissions, like those from deforestation or landfills, can be challenging to measure precisely.
- ✓ Ongoing scientific research reveals new GHGs and their potential impact on climate change. However, **comprehensive data on these emerging GHGs** may not be readily available, leading to gaps in our understanding of their sources and concentrations.
- ✓ **Lack of funding, technology, and expertise**, particularly developing countries limit their ability to conduct comprehensive monitoring and reporting.

Key Outcomes of GHG Watch

Tackling Information Gaps:	Tracking Temperature Increases:
The Global GHG Watch initiative recognizes the pressing need for improved monitoring of GHGs. By filling critical information gaps, it will provide accurate and up-to-date data on heat-trapping gases, allowing for a better understanding of their impact on the environment.	One of the primary objectives of the Global GHG Watch is to monitor and track temperature increases resulting from the accumulation of GHGs. This data will provide valuable insights into the changing climate and help shape effective mitigation and adaptation strategies.

The Role of the Global Greenhouse Gas Watch in Climate Action:



Conclusion

The approval of the Global GHG Watch initiative by the World Meteorological Congress marks a significant advancement in comprehension of greenhouse gases and their impact on climate change. This initiative bridges critical information gaps, which will lead to better-informed decision-making and empowering for effective action against global warming and climate change.

Fukushima Water Issue

News Excerpt

Japan recently received approval from International Atomic Energy Agency (IAEA), to release over a million tons of treated radioactive water from the damaged Fukushima Daiichi nuclear power plant.

Pre-Connect

- The tsunami in 2011 wreaked havoc on the plant's power supply and cooling systems.
- The IAEA stated that nuclear plants around the world use a similar process to dispose of wastewater containing low-level concentrations of tritium and other radionuclides.
- Fukushima uses Advanced Liquid Processing System (ALPS), which is a sophisticated technology utilized to eliminate the majority of radioactive elements present in contaminated water, excluding tritium, which is a challenging hydrogen isotope to separate.

About the Issue

- This approval has faced objections from local fishing communities and other countries such as China and South Korea, which share international waters, due to concerns about the potential impact.
- Water is released from nuclear power plants for various reasons, including cooling purposes and the management of excess or contaminated water.
- Although water is treated but even after ALPS, Tritium that is radioactive is remain in contaminated water.

- ❖ The International Atomic Energy Agency (IAEA) is an autonomous international organization regarding nuclear energy.

The IAEA is composed of-

- ❖ **General Conference:** It consists of representatives from all member states and meets annually to discuss policy matters, approve the budget, and make decisions regarding the agency's activities.
- ❖ **Board of Governors:** The Board comprises 35 member states elected by the General Conference. It meets several times a year and provides policy guidance and oversight to the IAEA's activities, including approving safeguards agreements and reviewing nuclear safety and security matters.
- ❖ **Secretariat:** The Secretariat is the operational arm of the IAEA, headquartered in Vienna, Austria. It is headed by the Director General, who is appointed by the Board of Governors and oversees the agency's day-to-day activities.

Functions-

- The IAEA verifies that nuclear materials are not diverted for non-peaceful purposes.
- The IAEA establishes and promotes nuclear safety standards and safe operation of nuclear facilities.
- The IAEA provides technical assistance and cooperation to its member states.

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Implications of nuclear-contaminated water

Marine ecosystem	<ul style="list-style-type: none"> Contaminated water can harm marine life and disrupt the delicate balance of the ocean ecosystem. Radioactive substances can accumulate in marine organisms, leading to Bio-magnification, genetic mutations, reproductive problems, and even death. This can have cascading effects on the food chain and biodiversity. Radionuclear substances can enter into human as well through ocean food chain.
Contamination of seafood and health risk	<ul style="list-style-type: none"> Radioactives can enter the bodies of marine organisms through water intake or food sources. This contamination can then be passed on to humans through the consumption of seafood, posing potential health risks. Long-term exposure to radioactive substances can increase the risk of cancer and other health problems.
Contamination of Fresh water	<ul style="list-style-type: none"> Contaminants can be blowout to other parts of the ocean, ocean currents can transport the contaminated water over large distances, potentially affecting cryosphere. Polar ice caps and Glacial Lake water could be contaminated which may pose risk to water security.
Economic consequences	<ul style="list-style-type: none"> Contamination of the ocean can have economic repercussions, especially for industries dependent on clean and healthy marine resources. Fishing and seafood industries may suffer due the safety of seafood. This will lead to financial losses, job cuts and comprising food security.
People perception	<ul style="list-style-type: none"> The release of nuclear-contaminated water into the ocean can erode public trust in nuclear energy and raise concerns about its safety. It can contribute to skepticism and opposition to nuclear projects, impacting future policy decisions and investment in the nuclear industry.

Challenges in Managing Contaminated Water:

- ✓ **Tritium Concerns:** Tritium is a radioactive isotope of hydrogen that is difficult to remove from water. While it poses lower risks compared to other radioactive isotopes, its release into the environment raises concerns about potential health and ecological impacts.
- ✓ **Storage Capacity and Risks:** The increasing volume of stored water poses challenges in terms of storage capacity and the risk of tank leaks or failures. Ensuring proper tank maintenance, monitoring, and containment measures are crucial to prevent the release of contaminated water into the environment.

Analytica

Balance of Nuclear Safety and Environment:

- Achieving a balance between nuclear safety and environmental concerns is a complex endeavor that requires thoughtful consideration and diligent action. Striking this delicate equilibrium is paramount, as it entails safeguarding human lives.
- Independent scientific assessments and studies should inform decision-making processes. Experts in radiation protection, marine biology, and environmental sciences should collaborate to analyze potential risks and assess the impact of different disposal options.
- There is need to ensure meaningful participation of local communities and other stakeholders in the decision-making process, their concerns, knowledge, and perspectives should be taken into account to build trust and develop sustainable solutions.

Conclusion:

The Fukushima water issue presents a complex challenge that necessitates a careful balance between ensuring nuclear safety and addressing environmental concerns. Transparent communication, scientific evaluation, stakeholder engagement, and long-term monitoring are key to finding sustainable solutions. By navigating this issue with utmost caution and adhering to stringent safety measures, Japan can demonstrate its commitment to environmental stewardship, technological innovation, and responsible nuclear energy management to the global community.

Issues with plastic recycling

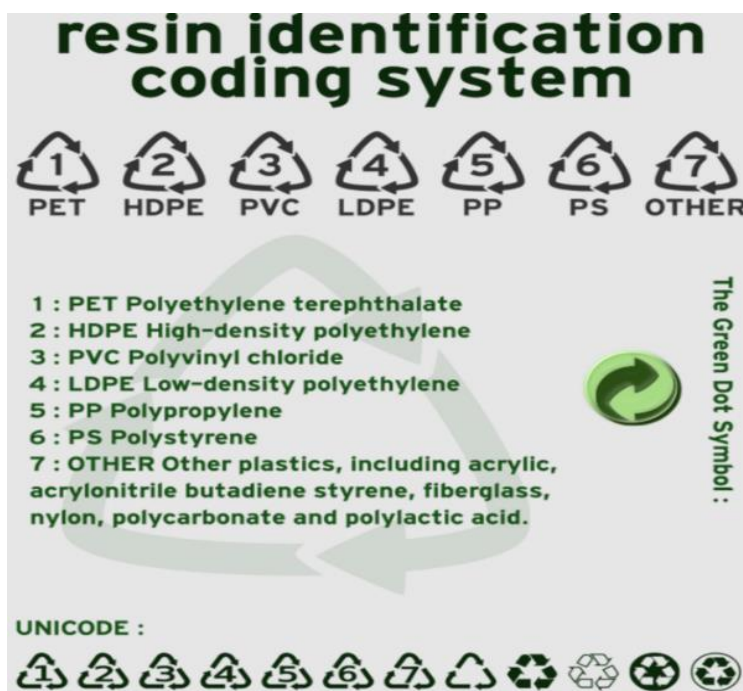
News Excerpt

A Greenpeace study has concluded that recycling increases the toxicity of plastics.

Pre-Connect

- From the 1950s to the 1970s, only a small amount of plastic was produced, and as a result, plastic waste was relatively manageable.
- However, between the 1970s and the 1990s, plastic waste generation more than tripled, reflecting a similar rise in plastic production.
- In the early 2000s, the amount of plastic waste we generated rose more in a single decade than it had in the previous 40 years.
- Today, as per UNEP about 400 million tonnes of plastic waste is generated every year.
- The Organisation for Economic Co-operation and Development (OECD) estimated that only 9 per cent of plastic waste is recycled globally. The situation is only set to get worse as plastic production is forecast to triple by 2060, with only a minimal increase in recycling predicted.
- Global plastic pollution can reduce by 80 per cent by 2040 if countries and companies make deep policy and market shifts using existing technologies and also shift to a circular economy, according to a report launched by United Nations Environment Programme.

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Understanding Plastic Recycling

Mechanical recycling	Feedstock recycling	Energy recovery (Waste-to-Energy)	Plastic-to-fuel conversion	Upcycling
<ul style="list-style-type: none"> Mechanical recycling is the most common method used globally. It involves sorting and cleaning plastic waste, shredding it into small pieces, and then melting and reforming the shredded plastic to create new plastic products This method is suitable for plastics that can be easily melted and reprocessed, such as polyethylene (PE) and polypropylene (PP). 	<ul style="list-style-type: none"> Feedstock recycling, also known as chemical recycling, involves breaking down plastic waste into its basic chemical components through various chemical processes. This allows the recovery of valuable chemicals and monomers for the production of new plastics or other products. Different methods including pyrolysis, depolymerization, and gasification, fall under this category. 	<ul style="list-style-type: none"> Energy recovery is a process where non-recyclable plastic waste is incinerated to generate energy. During this process, the heat generated is used to produce electricity or heat for industrial processes. Energy recovery considered a form of waste management that reduces the volume of plastic waste while harnessing the energy content 	<ul style="list-style-type: none"> This method involves converting plastic waste into liquid fuels, such as diesel or gasoline through processes like pyrolysis or gasification. Plastic-to-fuel conversion offers an alternative to traditional fossil fuels and reduces the dependency on crude oil 	<ul style="list-style-type: none"> Upcycling refers to the process of transforming plastic waste into higher-value products with improved quality functionality It involves creative reuse and repurposing of plastic materials to create new products, minimizing the need for additional processing

Challenges pertaining to plastic recycling

- Plastic waste is often contaminated with non-recyclable materials or other types of plastic, making sorting and recycling difficult.
- Different types of plastics require specific recycling processes, but the wide range of plastic types and variations complicates recycling efforts.
- Insufficient recycling infrastructure and limited capacity hinder the efficient collection, sorting, and processing of plastic waste.
- Fluctuating market prices for recycled plastics and the high costs associated with collection, sorting, and processing pose financial challenges to the plastic recycling industry.
- Low levels of awareness and participation in recycling programs result in inadequate collection and sorting of plastic waste.
- Inconsistent labeling of plastic products makes it difficult to identify and sort plastics effectively.

Negative Implications of Plastics Recycling

- ✓ Plastics contain more than 13,000 chemicals and 3,200 of them are known to be hazardous to humans. Recycled plastics often contain higher levels of chemicals that can poison people and contaminate ecosystems.
- ✓ The report highlights three poisonous pathways for the recycled plastic material to accumulate toxic chemicals-
 - Direct contamination from toxic chemicals in virgin plastic
 - Substances like plastic containers for pesticides, cleaning solvents and others that enter the recycling chain and can contaminate plastic
 - The recycling process, when plastics are heated
- ✓ Plastic production, disposal and incineration facilities are most often located in low-income, marginalised communities across the world, which suffer from higher rates of cancer, lung disease and adverse birth outcomes associated with their exposure to the toxic chemicals.
- ✓ **Energy consumption:** Plastic recycling typically requires energy-intensive processes such as sorting, cleaning, shredding, melting, and reprocessing. The energy demands of these processes, including electricity and fuel consumption, contribute to carbon emissions and the consumption of natural resources.
- ✓ **GHG Emissions and pollutants:** The recycling process for certain types of plastics, particularly those that contain additives or contaminants, can release harmful chemicals and pollutants into the environment. These emissions may include volatile organic compounds (VOCs), greenhouse gases, and hazardous by-products, which can contribute to air and water pollution if not properly controlled.
- ✓ **Water usage and contamination:** Plastic recycling processes often involve the use of water for cleaning and cooling purposes. Large-scale recycling operations can consume significant amounts of water, putting pressure on water resources. Improper handling of wastewater generated during recycling can lead to water contamination if not adequately treated and managed.

In India, plastic recycling faces specific challenges, including:

❖ Informal recycling sector dominance:

- The informal sector plays a significant role in plastic recycling, with a large number of small-scale, unregulated units.
- While they contribute to recycling efforts, the lack of proper infrastructure and inadequate safety measures pose environmental and health risks.

❖ Inadequate collection and segregation systems:

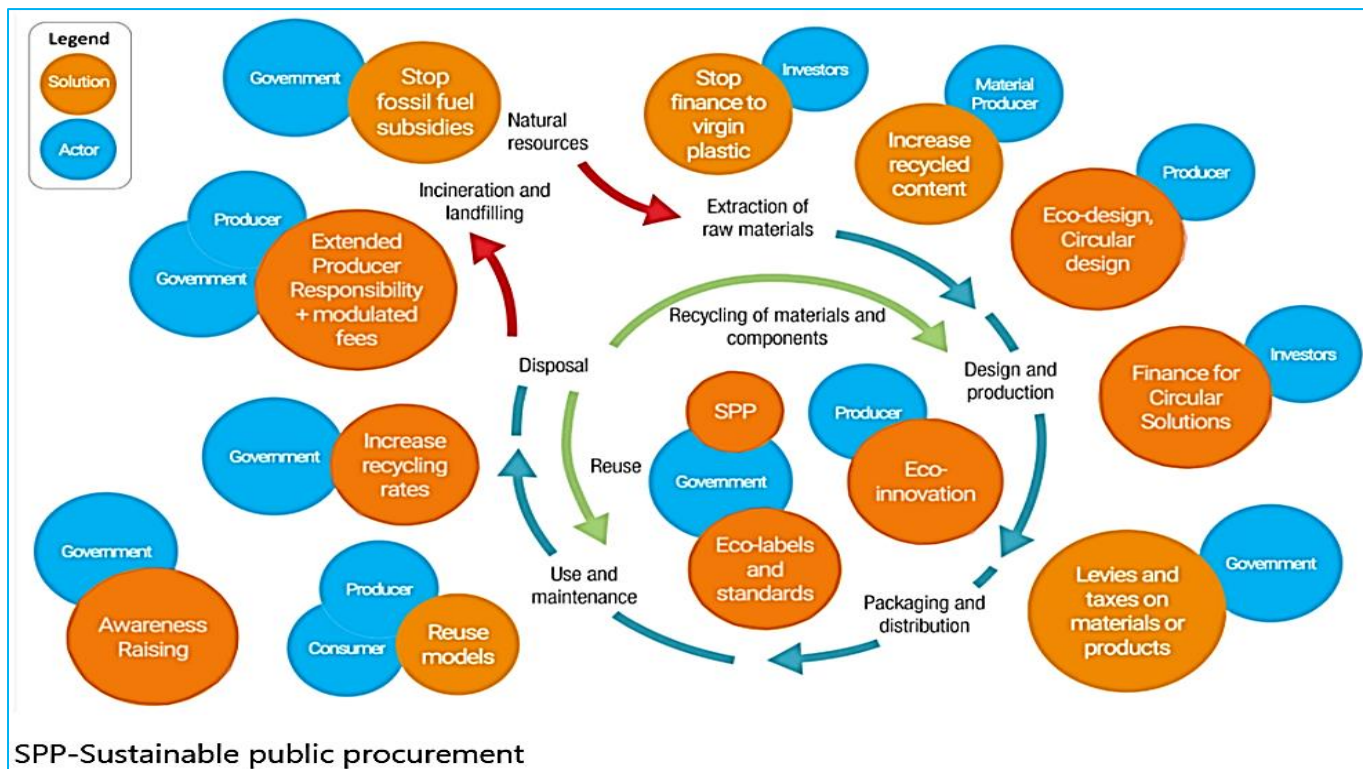
- Collection and segregation of plastic waste are often inefficient and inconsistent in many parts of India. Insufficient waste management infrastructure and low awareness among the public hinder the effective collection and sorting of plastic waste for recycling.

❖ Limited recycling capacity:

- Despite the increasing demand for plastic recycling, India has limited recycling capacity, particularly for complex and low-value plastics.
- Insufficient investment in recycling infrastructure, lack of advanced technology, and limited access to appropriate machinery hinder scaling up recycling operations.

❖ Lack of effective extended producer responsibility (EPR) implementation:

- While EPR regulations have been introduced in India, their effective implementation is still a challenge. The responsibility for managing and recycling plastic waste often falls short in terms of accountability and enforcement, impacting the overall recycling ecosystem.



- ✓ **Microplastic generation:** Plastic recycling processes can inadvertently contribute to the generation of microplastics. Shredding and grinding of plastic materials during recycling can produce small plastic particles that may enter the environment and pose risks to ecosystems and organisms.

Conclusion

It is crucial to continually improve recycling technologies, invest in cleaner and more energy-efficient processes, promote better waste management practices, and encourage the development of recyclable and environmentally friendly plastic materials. A holistic approach that considers the entire life cycle of plastics, from production to disposal, is essential for minimizing the environmental drawbacks of plastic recycling.

Ground-level ozone

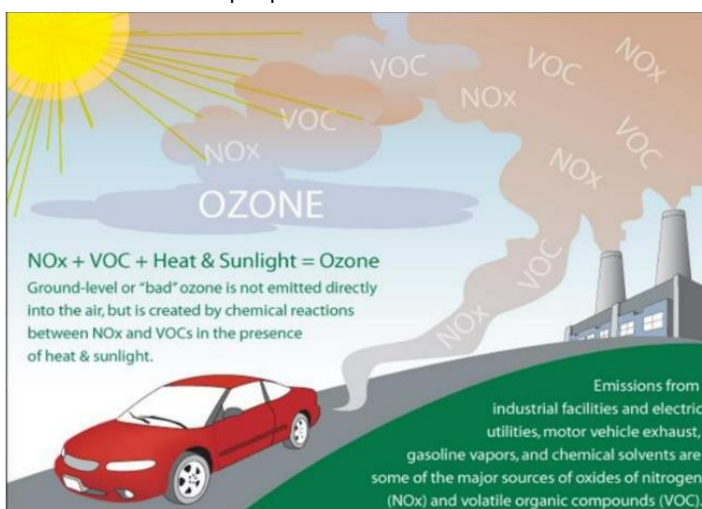
News Excerpt

The Centre for Science and Environment (CSE) study indicates that certain areas within the Delhi-NCR region have observed ground-level ozone levels surpassing the established national standards.

Pre-Connect

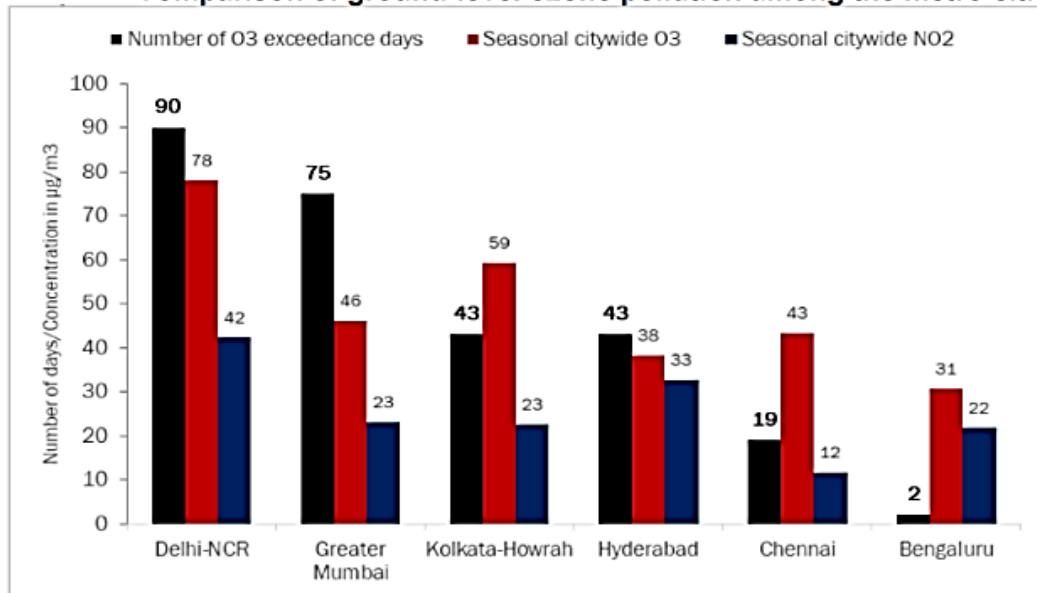
- Ground-level ozone, found closer to the Earth's surface, is referred to as tropospheric or "bad" ozone.
- Ground-level ozone is formed in the atmosphere through a photochemical reaction involving sunlight, nitrogen oxides (NO_x), and various volatile organic compounds (VOCs).
- Volatile organic compounds (VOCs) are hydrocarbons that exhibit photochemical reactivity and contribute to the formation of ground-level ozone.
- Photochemical smog, hazy and brownish-gray appearance, is an air pollution phenomenon that significantly contributes to the generation of ground-level ozone.
- Stagnant atmospheric conditions in certain regions promote the occurrence of photochemical smog by trapping air pollutants near the Earth's surface.

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- The lack of air movement prevents the dispersion of pollutants, allowing them to accumulate and undergo chemical reactions.
- As a result, ground-level ozone is formed as a secondary pollutant within the lower atmosphere.

Comparison of ground-level ozone pollution among the metro cities (March-May, 2022)



Note: Exceedance is computed as daily maximum 8-hr average crossing the ground-level ozone 8-hr standard, i.e. 100 µg/m³.

Key Takeaways

- The CSE analysis, based on data from the Central Pollution Control Board (CPCB) collected from 58 stations across Delhi-NCR, also indicates that although the extent of ground-level ozone exceeding the standard has been relatively lower this year, its duration has increased.
- Ground-level ozone formation is more prevalent during the summer months.
- Delhi-NCR recorded ozone exceedance on almost all days of this summer. Mumbai with 75 days of exceedance was the second most impacted metro.
- Kolkata-Howrah and Hyderabad registered 43 days of exceedance each. There have been 43 days this summer so far that have registered exceedance among the air quality monitoring stations of greater Kolkata.
- Delhi-NCR recorded ozone exceedance on almost all days of this summer. Mumbai with 75 days of exceedance was the second most impacted metro city.
- For Mumbai ground-level ozone is becoming a yearlong problem: There have been 75 days this summer so far that have registered exceedance among the air quality monitoring stations of greater Mumbai.
- Chennai and Bengaluru have longer duration of exceedance despite lower frequency compared to other metros.

Implications of Ground Level Ozone

- ✓ **Human Health:** Ground-level ozone is a harmful air pollutant and a primary component of smog. Prolonged exposure to high levels of ozone can cause respiratory issues, aggravate asthma and other lung diseases, and lead to cardiovascular problems.
- ✓ **Environmental Effects:** Ozone negatively impacts the environment in several ways. It damages plant foliage, reducing crop yields, and inhibiting photosynthesis. It also harms trees, reducing their growth, and making them more susceptible to pests, diseases, and extreme weather events.
- ✓ **Agriculture:** Ground-level ozone damages crops, reducing agricultural productivity. It can decrease crop yields, damage plant tissues, and disrupt the photosynthetic process. Ozone-induced agricultural losses can have a significant economic impact on farmers and food production.
- ✓ **Weather and Climate:** Ozone plays a role in the formation of smog and contributes to climate change. It is a potent greenhouse gas, trapping heat in the atmosphere and contributing to global warming. Changes in ozone levels can also affect weather patterns, leading to altered precipitation and temperature patterns.
- ✓ **Economy:** The impacts of ground-level ozone have economic consequences. Reduced agricultural productivity and crop losses affect farmers' income and can lead to higher food prices. Additionally, healthcare costs increase due to the adverse health effects associated with ozone exposure.

- ✓ **Governance:** The detrimental effects of ground-level ozone require effective governance and environmental policies to mitigate and control its emissions. Governments need to regulate industrial emissions, promote cleaner technologies, and implement air quality standards to protect public health and the environment.

Way Forward

- Invest in research and innovation to develop advanced technologies and strategies for ozone pollution prevention and control.
- Encourage the adoption of electric vehicles and promote the use of public transportation. So that the concentration of NOX can be controlled and so as Ozone.
- Strengthen environmental governance by enacting and enforcing effective policies and regulations. Ensure coordination among different government agencies, promote interagency cooperation, and establish mechanisms for accountability and compliance.
- There is need to implement stringent regulations and standards to control emissions from industries, vehicles, and other pollution sources. Therefore, Promotion of cleaner technologies and the use of renewable energy sources should be scaled up.

Sustainable Aviation Fuel

News Excerpt

Recently, India cited that the worldwide requirement for Sustainable Aviation Fuel (SAF) to be adopted by 2050 was deemed "too early." India emphasized that each country should have the freedom to devise its own strategy based on national plans.

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About SAF

- Sustainable aviation fuel(SAF) is derived from renewable sources such as non-food crops, agricultural residues, waste oils, and algae.
- Unlike traditional jet fuel, which is derived from fossil fuels, SAF utilizes sustainable feedstocks, reducing reliance on finite resources.
- SAF can be used in existing aircraft and infrastructure without requiring major modifications. It can be blended with conventional jet fuel or used as a drop-in replacement, making it a viable option for transitioning to greener aviation.
- It offers a viable alternative to fossil-based fuels, thereby fostering a greener aviation industry.

Environmental Benefits of SAF

- SAF can reduce carbon dioxide emissions by up to 80% compared to conventional jet fuel. This substantial decrease in greenhouse gas emissions supports global efforts to combat climate change and achieve carbon neutrality.
- SAF significantly decreases greenhouse gas emissions compared to conventional jet fuel. It can reduce carbon dioxide (CO2) emissions by up to 80%, contributing to global efforts to combat climate change and achieve carbon neutrality.
- The use of SAF leads to lower emissions of pollutants such as sulfur oxides (SOx), nitrogen oxides (NOx), and particulate matter. This reduction improves air quality, benefiting both human health and the environment.
- SAF promotes responsible sourcing practices, minimizing the impact on biodiversity and ecosystems. It encourages the use of non-food crops and waste materials, avoiding competition with food production and land use conflicts.
- SAF can contribute to carbon offset programs, enabling airlines to reduce their carbon footprint. By using SAF, airlines can offset a portion of their emissions and work towards sustainability goals.
- The use of sustainable feedstocks for SAF production encourages sustainable land use practices and minimizes the potential impact on biodiversity. By promoting responsible sourcing, it helps protect valuable ecosystems.

Challenges

- ✓ **Scaling up production:** One of the key challenges is the limited availability and high cost of sustainable feedstocks. To address this, governments and industry stakeholders should collaborate to incentivize research, development, and large-scale production of SAF. Investment in research and technological advancements can enhance feedstock yields and reduce costs.
- ✓ **Regulatory framework:** Establishing robust regulatory frameworks and international standards is crucial to foster the widespread adoption of SAF. Governments should provide policy support, including incentives, mandates, and long-term contracts, to encourage investment and market growth.
- ✓ **Infrastructure development:** Infrastructure for the production, storage, and distribution of SAF needs to be developed. Governments and aviation industry stakeholders should collaborate to build the necessary infrastructure, including dedicated production facilities and supply chains.

Conclusion:

The aviation industry stands at a crossroads, where the imperative to reduce environmental impact has become increasingly apparent. Sustainable aviation fuel offers a viable pathway to address this challenge. SAF presents an opportunity to achieve sustainable development without compromising air connectivity and economic growth. With concerted efforts from governments, industry, and stakeholders, the adoption of SAF can transform aviation into a more sustainable, responsible, and eco-friendly mode of transportation.

Heatwave Conditions

News Excerpt

Odisha has been reeling under heatwave conditions with temperatures soaring above 40°C at 31 of the 38 monitoring centres of the India Meteorological Department (IMD) located in the state.

Pre-Connect

Heat Waves

- Heatwaves are prolonged periods of excessively hot weather, typically occurring during the summer months.
- They are characterized by high temperatures and often accompanied by high humidity, making the conditions feel even hotter.
- Heatwaves can vary in intensity and duration, ranging from a few days to several weeks.
- During a heatwave, temperatures rise significantly above the average for a particular region.

Odisha Heatwaves

- Odisha has a history of extreme heat.
- In 1998, over 2,000 people died due to extreme heatwaves.
- The fatalities since then have been in two digits except for 2005 and 2010, when 237 and 109 people died, respectively.

Factors Causing Heatwaves

- Geographical Location:** Odisha is situated on the eastern coast of India and experiences the influence of both the Bay of Bengal and the prevailing monsoon winds.
- Tropical Climate:** Characterized by high temperatures and humidity throughout the year, the climatic condition provides a favorable environment for the development of heatwaves.
- Continental Interior Influence:** The interior parts of Odisha are influenced by the continental interior. This results in hot and dry winds blowing from central India, leading to increased temperatures and heatwave conditions.
- Monsoon Variability:** Variability in monsoon patterns, such as delayed onset or weak monsoon rainfall, can create conditions conducive to heatwaves.
- Climate Change:** It is contributing to the increased frequency and intensity of heatwaves globally, including in Odisha. Rising temperatures due to climate change can exacerbate heatwave conditions in the region.
- Urban Heat Island Effect:** The presence of concrete structures, limited green spaces, and increased anthropogenic activities can lead to higher temperatures in urban areas compared to surrounding rural regions.

Challenges Posed by Heatwaves

- ✓ **Health Risks:** Heat-related illnesses can cause problems including heatstroke, organ failure, and even death, especially in vulnerable populations such as the elderly, children, and those with pre-existing medical conditions.
- ✓ **Agricultural Losses:** Prolonged heatwaves can result in drought conditions, reduced soil moisture, and crop failures thus impacting food security in the region.
- ✓ **Infrastructure Stress:** The expansion and contraction of materials due to extreme heat can lead to structural damage including roads, power, buildings, and public transportation systems.
- ✓ **Impact on Livelihoods:** Heatwaves can negatively affect livelihoods, particularly those engaged in outdoor work such as agriculture, construction, and manual labor.

Way Forward

- **Cuttack Heatwave Action Plan 2023:**
 - Early warning dissemination: Forecast and issuance of heat waves alert by Indian Meteorological Department.
 - Monitoring heatwaves by the disaster management authority.
 - Information dissemination through SATARK application
- **Health and Emergency Services:** Training healthcare professionals on recognizing and treating heat-related conditions, ensuring the availability of medical supplies, and establishing cooling centers to provide relief to public.

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- **Public Awareness and Education:** Conducting public awareness campaigns to educate the general population about heatwave risks, preventive measures, and appropriate responses is crucial.
- **Urban Planning and Green Spaces:** Promoting the use of cool roofing materials, increasing tree cover and green spaces, improving ventilation in buildings, and implementing measures to reduce the urban heat island effect.
- **Community Resilience:** Building community resilience through local-level initiatives such as strengthening community networks, establishing early warning systems at the community level, promoting heatwave preparedness and response practices, and supporting community-led adaptation and mitigation efforts.
- **Precautions:** It involves measures such as staying hydrated, avoiding strenuous activities during peak heat hours, seeking shade or air-conditioned spaces, and checking on vulnerable individuals.

PEPPER IT WITH

Volcanic Eruptions,
Marine Heatwaves

Bonn Climate Meet

News Excerpt

Delegates representing more than 100 Parties to the Paris Agreement met in Bonn, Germany, paving the way for some key decisions for the UN Climate Conference (COP 28) in Dubai.

Pre-Connect

UNFCCC Conference of Parties

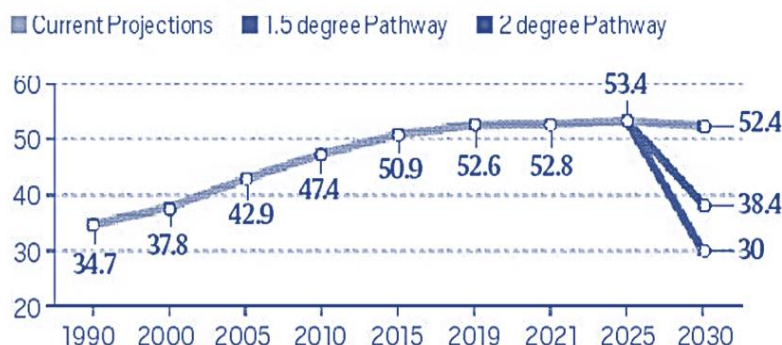
- The COP is the supreme decision-making body of the UNFCCC.
- The COP meets every year, unless the Parties decide otherwise. The first COP meeting was held in Berlin, Germany in March, 1995.
- The COP meets in Bonn, the seat of the secretariat, unless a Party offers to host the session.
- The COP Presidency rotates among the five recognized UN regions which include Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe and Others.
- The venue of the COP also shifts among these groups.

Significant Outcomes of Bonn Climate Meet

- **The Global Stocktake (GST)** is designed to drive the Paris Agreement's ambition cycle and will provide the basis for the next round of Parties' emissions reduction targets for 2035 and 2040, as well as new efforts to adapt to the impacts of climate change and to raise financial and technical resources to support developing countries.
- Negotiations also followed up on the breakthrough commitment Parties made at COP27 in Egypt, notably, to put in place balanced **new funding arrangements**, with an expanded donor base, to help vulnerable communities to face loss and damage caused by climate change.
- Progress was made on operationalising the **Santiago Network** on loss and damage, but unfortunately no decision was reached on the host of the network, despite the constructive engagement of all Parties.
- The parties remain hopeful that they can craft a solution in Dubai that will ensure that **technical assistance** can start flowing soon to those that need it the most.

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EMISSIONS STILL GROWING



Emissions in billion tonnes of CO2 eq

Projected Emissions in 2030	52.4 billion tonnes CO2eq
2030 Emissions for 2-degree pathway	38.4 billion tonnes Gap: 14 billion tonnes
2030 Emissions for 1.5-degree pathway	30 billion tonnes Gap: 22.4 billion tonnes

Projected rise in global temperatures with current level of climate action by 2030: 2.1 to 2.9 degree Celsius

Global Stocktake

- ✓ Mandated by the 2015 Paris Agreement, GST is an exercise aimed at **assessing the progress** in the fight against climate change, and deciding ways and means to enhance global action to bridge the adequacy gap.

- ✓ The Paris Agreement says GST must be conducted every five years, starting in 2023.
- ✓ The exercise saw repeated squabbling between the developed and developing countries, mainly over provisions related to finance and the 'historical responsibility' of the rich countries.

Criticism of Bonn

- **Lack of concrete action:** International meetings often result in a lot of talk and little action as Bonn meeting failed to produce tangible outcomes.
- **Inadequate follow-up mechanisms:** Even if the Bonn meeting resulted in commitments or agreements, there is lack of robust follow-up mechanisms.
- **Insufficient focus on critical issues:** The meeting's agenda was too narrow and it neglected urgent matters that required immediate attention.
- **Limited public engagement:** The Bonn meeting lacked transparency and meaningful public participation which could lead to a perception that decisions were made behind closed doors without considering the input or concerns of the wider public.
- **Political posturing** and lack of genuine commitment: Some participants in the Bonn meeting use it as a platform for political posturing rather than genuinely engaging in productive discussions and seeking solutions.

PEPPER IT WITH

Paris Agreement, UNFCCC COP 27

Way Forward

- ✚ **Financial Support:** Developed nations should fulfill their commitment to mobilize finance to assist developing countries in their climate mitigation and adaptation efforts.
- ✚ **Adaptation and Resilience:** Supporting vulnerable countries and communities in developing and implementing adaptation strategies, enhancing climate resilience.
- ✚ **Technology Transfer and Capacity Building:** Facilitating technology transfer from developed to developing countries and capacity building to accelerate the adoption and deployment of climate-friendly technologies in developing nations.
- ✚ **Just Transition and Equity:** Supporting affected communities and workers in transitioning to low-carbon economies is essential to avoid social and economic disruptions.
- ✚ **Strengthening International Cooperation:** Encouraging knowledge sharing, technology cooperation, and promoting partnerships between governments, civil society, and the private sector to address climate change collectively.
- ✚ **Mobilizing Public Support and Awareness:** Engaging and mobilizing various stakeholders, including youth, civil society organizations, and the private sector, can generate broader support for climate policies and accelerate the transition to a sustainable future.

Tracking SDG7: The Energy Progress Report 2023

News Excerpt

Recently, **Tracking SDG7: The Energy Progress Report 2023** was released. The five SDG 7 custodian agencies, International Energy Agency (IEA), International Renewable Energy Agency, United Nations Statistics Division, World Bank and the WHO, collaborated to release the document.

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Pre-Connect

SUSTAINABLE GOAL:

- The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.
- The 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.
- They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.



THE GLOBAL GOALS
For Sustainable Development

Key Points Of The Report

While there is no quantitative target for this indicator, IEA and IRENA scenarios estimated staying in line with international climate and energy goals required annual investments in renewable electricity generation and related infrastructure of USD 1.4-1.7 trillion through 2030.

Concerns

- Factors like high inflation, uncertain macroeconomic outlook and debt distress are keeping the world off-track for attaining United Nations-mandated Sustainable Development Goal 7 by 2030, according to a new UN report. SDG 7 is to "ensure access to affordable, reliable, sustainable and modern energy for all."
- Several major economic factors are impeding the realisation of SDG 7 globally, like
 - uncertain macroeconomic outlook,
 - high levels of inflation, currency fluctuations,
 - debt distress in many countries,
 - lack of financing, supply chain bottlenecks,
 - tighter fiscal circumstances and soaring prices for materials.

	INDICATOR	2010	LATEST YEAR
	7.1.1 Proportion of population with access to electricity	1.1 billion people without access to electricity	675 million people without access to electricity (2021)
	7.1.2 Proportion of population with primary reliance on clean fuels and technology for cooking	2.9 billion people without access to clean cooking	2.3 billion people without access to clean cooking (2021)
	7.2.1 Renewable energy share in total final energy consumption	16% share of total final energy consumption from renewables	19.1% share of total final energy consumption from renewables (2020)
	7.3.1 Energy intensity measured as a ratio of primary energy and GDP	5.53 MJ/USD primary energy intensity	4.63 MJ/USD primary energy intensity (2020)
	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	11.9 USD billion international financial flows to developing countries in support of clean energy	10.8 USD billion international financial flows to developing countries in support of clean energy (2021)

- Certain policy responses to the global energy crisis appear likely to improve the outlook for renewables and energy efficiency. However, other necessary policy actions, as well as financial flows, continue to lag.
- This particularly concerns lacking universal access to electricity and clean cooking in developing economies, with projections indicating that SDG 7 will not be reached by 2030.
- The decreasing trend in international public financial flows may delay the achievement of SDG 7, especially for the least-developed countries (LDCs), landlocked developing countries, and small island developing states.
- Some 1.9 billion people would still be without access to clean cooking in 2030, the report said. If current trends continue, almost six out of ten people without access to clean cooking in 2030 would reside in Sub-Saharan Africa.

Improvements

- ✓ The rate of improvement in energy efficiency (target 7.3) is not on track to double by 2030, with the current trend of 1.8 per cent falling short of the targeted increase of 2.6 per cent each year between 2010-2030.
- ✓ Progress on target 7.a — to increase international public financial flows supporting clean energy in developing countries — began to decline even before the onset of the COVID-19 pandemic.
- ✓ Globally, access to electricity grew by an annual average of 0.7 percentage points between 2010 and 2021, rising from 84 per cent of the world's population to 91 per cent.
- ✓ With the ongoing impact of COVID-19 and soaring energy prices, the IEA estimates show 100 million people who recently transitioned to clean cooking may revert to using traditional biomass.
- ✓ SDG target 7.3 calls for doubling the global rate of improvement in energy intensity over the average rate during 1990–2010 — which means improving energy intensity by 2.6 per cent per year between 2010 and 2030.
- ✓ However, progress between 2010 and 2020 averaged only 1.8 per cent, the paper showed. To make up for lost ground, improvement in energy intensity must now exceed 3.4 per cent globally from 2020 to 2030—twice the rate achieved in the past decade.

India's initiatives to achieve SDG

- The National Action Plan on Climate Change (NAPCC) is an initiative of the Government for addressing, combating & adapting to climate change. It comprises of eight core Missions in specific areas of solar energy, enhanced energy efficiency, sustainable habitat, water, sustaining Himalayan ecosystems, Green India, sustainable agriculture, and strategic knowledge for climate change.
- The National Clean Air Programme (NCAP) is a national-level strategy to reduce air pollution levels across the country. Under it, the City Specific Clean Air Action Plans have been prepared and rolled out for implementation in 132 non-attainment and million-plus cities.
- India achieved a 24% reduction in emission intensity of its GDP between 2005 and 2016. India will achieve net-zero carbon emissions by 2070. This is the commitment India has made at COP26.
- The Survey states that a harmonized overarching National Policy on Resource Efficiency (RE), building upon the existing policies to address multiple sectors should be devised for mainstreaming Resource Efficiency approach in the development pathway for achieving SDGs.
- India follows a holistic approach towards its 2030 Sustainable Development Goals (SDGs) by launching various schemes. India's SDG Index Score ranges between 42 and 69 for States and between 57 and 68 for UTs.

Way forward

- ✚ To achieve sustainable development goal world should be unite irrespective of their personal benefit.
- ✚ Every country should define their responsibility and achievement towards the SDG.

PEPPER IT WITH

SDG, SDG India report, Tracking SDG7: The Energy Progress Report 2023

SCIENCE & TECHNOLOGY

Artemis Accords

News Excerpt

During his visit to the USA, Prime Minister of India signed the Artemis Accords and NASA and ISRO have also agreed to launch a joint mission to the International Space Station in 2024.

Pre-ConnectArtemis Accords

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- Through the Artemis program, NASA will land the **first woman and first person of color** on the Moon, make new scientific discoveries, and explore more of the lunar surface than ever before for the benefit of all.
- While NASA is leading Artemis, international partnerships will play a key role in achieving a sustainable and robust presence at the Moon where the agency will prepare for the **first human mission to Mars**.
- With numerous countries and private companies conducting missions and operations around the Moon, a common set of principles to govern the civil exploration and use of outer space is necessary.
- NASA, in coordination with the U.S. Department of State, established the Artemis Accords in 2020 together with seven other founding member nations.
- The accords reinforce the commitment by the United States and signatory nations to the **Registration Convention, the Rescue and Return Agreement**, as well as best practices and norms of responsible behavior that NASA and its partners support, including the public release of scientific data.
- Member Countries**- Australia, Bahrain, Brazil, Canada, Colombia, Czech Republic, Ecuador, France, India, Israel, Italy, Japan, Luxembourg, Mexico, New Zealand, Nigeria, Poland, South Korea, Romania, Rwanda, Singapore, Spain, Saudi Arabia, Ukraine, United Arab Emirates, United Kingdom, United States

Principles of Artemis Accord

- Peaceful Purposes**: The core of the Artemis Accords is the requirement that all activities will be conducted for peaceful purposes, per the tenets of the Outer Space Treaty.
- Transparency**: It is a key principle for responsible civil space exploration.
- Interoperability**: Artemis Accords call for partner nations to utilize open international standards, develop new standards when necessary, and strive to support interoperability to the greatest extent practical.
- Emergency Assistance**: All the partner nations commit to taking all reasonable steps possible to render assistance to astronauts in distress.
- Registration of Space Objects**: Accords reinforce the critical nature of registration and urge any partner who isn't already a member of the Registration Convention to join as soon as possible.
- Others**:
 - Release of Scientific Data
 - Protecting Heritage
 - Space Resources
 - Deconfliction of Activities
 - Orbital Debris and Spacecraft Disposal

Significance

- It would facilitate **increased collaboration** between ISRO, NASA and other international space agencies involved in the Artemis program. This collaboration could lead to joint missions, technology sharing, and scientific research partnerships, fostering global cooperation in space exploration.
- The Artemis Accords address the **utilization of lunar resources**, including water ice, minerals, and other materials and India can participate in discussions on their extraction and utilization.
- Technological Advancement**: The program involves advanced space technologies, including human spaceflight, robotic missions, and lunar surface infrastructure and India could gain access to expertise, technologies, and resources related to these areas.
- Joining the Artemis Accords strengthens India's position in the international space community and it demonstrates India's commitment to **responsible and cooperative space exploration**.
- Inspiring the Nation**: It could encourage the development of a skilled workforce and foster a broader interest in science, technology, engineering, and mathematics (STEM) education across the country.

Challenges

- ✓ **National Sovereignty:** The Artemis Accords require participating nations to agree to the use of space resources in a manner that complies with international law.
- ✓ **International Collaboration:** India would need to align its space policies, plans, and objectives with those of other countries involved in the accords.
- ✓ **Financial and Technological Capacity:** The cost of participation in such ventures could be a significant challenge for India.
- ✓ **International Relations:** Joining the Artemis Accords may have implications for existing collaborations with other nations. For example, India- Russia space collaboration.

Way Forward

- Engage with **relevant stakeholders**, including government agencies, space industry players, scientific institutions, and civil society organizations, to gather input and insights to identify concerns, challenges, and opportunities and address them effectively.
- India can **leverage its existing strengths** and expertise by investing in research and development, infrastructure, and human resources.
- Strengthen **bilateral and multilateral engagements** with countries already involved in the Artemis Accords to establish partnerships and foster collaboration.
- India can **negotiate provisions and safeguards** within the accords that protect its sovereignty over space resources and ensure compatibility with its existing legal framework.

PEPPER IT WITH

Chandrayaan 3, China's Space Station, Gaganyaan

Deep Sea Mining

News Excerpt

The International Seabed Authority which is the United Nations body that regulates the world's ocean floor is preparing to resume negotiations that could open the international seabed for mining, including for materials critical for the green energy transition.

Pre-Connect

What Is Deep Sea Mining?

- Deep sea mining involves removing mineral deposits and metals from the ocean's seabed.
- There are three types of such mining:
 - Taking deposit-rich polymetallic nodules off the ocean floor.
 - Mining massive seafloor sulphide deposits.
 - Stripping cobalt crusts from rock.
- These nodules, deposits and crusts contain materials, such as nickel, rare earths, cobalt etc that are needed for everyday technology like cellphones, batteries and computers.
- Governments view these as strategically important resources that will be needed as onshore reserves are depleted and demand continues to rise.

Regulation of Deep-Sea Mining

- Countries manage their own maritime territory and exclusive economic zones.
- The high seas and the international ocean floor are governed by the United Nations Convention on the Law of the Seas (UNCLOS).
- UNCLOS is considered to apply to states regardless of whether or not they have signed or ratified it.
- Under the treaty, the seabed and its mineral resources are considered the common heritage of mankind that must be managed in a way that protects the interests of humanity.
- Such measures include the sharing of economic benefits, support for marine scientific research, and protecting marine environments.
- Mining companies interested in deep sea exploitation are partnering with countries to help them get exploration licenses and around 30 exploration licenses have been issued so far.

Challenges Associated with Deep Sea Mining

- ✓ Only a small part of the deep seabed has been explored and conservationists worry that ecosystems will be damaged by mining, especially without any environmental protocols.

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- Damage from mining can include noise, vibration and light pollution, as well as possible leaks and spills of fuels and other chemicals used in the mining process.
- ✓ Sediment plumes from some mining processes can harm filter-feeding species like corals and sponges and could interfere with some creatures.
- ✓ The full extent of implications for deep sea ecosystems is unclear, but scientists have warned that biodiversity loss is inevitable and potentially irreversible.
- ✓ The distribution and concentration of valuable minerals on the seabed are not well understood, making it challenging to locate and extract them economically.
- ✓ The governance of deep-sea mining activities is complex, as it involves multiple stakeholders, including governments, international bodies, mining companies, and environmental organizations.

Way Forward

- The International Seabed Authority's Legal and Technical Commission will soon discuss the future mining code draft.
- Engineering and technology used for deep sea mining are still evolving.
 - Some companies are looking to vacuum materials from seafloor using massive pumps.
 - Others are developing artificial intelligence-based technology that would teach deep sea robots how to pluck nodules from the floor.
 - Some are looking to use advanced machines that could mine materials off side of huge underwater mountains and volcanoes.
- To reduce the demand for new mineral extraction, emphasis should be placed on resource efficiency and recycling and promoting circular economy.
- Certain areas of the deep sea should be designated as protected areas to safeguard fragile ecosystems and biodiversity hotspots which can help promote the recovery and resilience of deep-sea habitats.
- There should be transparent and equitable benefit-sharing mechanisms that ensure that the economic gains from mining activities are shared with the local communities and contribute to their sustainable development.

PEPPER IT WITH

Ocean Bottom Trawling,
International Seabed
Authority, UNCLOS

Aspartame: an artificial sweetener

News Excerpt

Recent reports stated that Artificial sweetener Aspartame may increase cancer risk in human and WHO is gearing up to declare it as 'possibly carcinogenic to humans'.

Pre-Connect

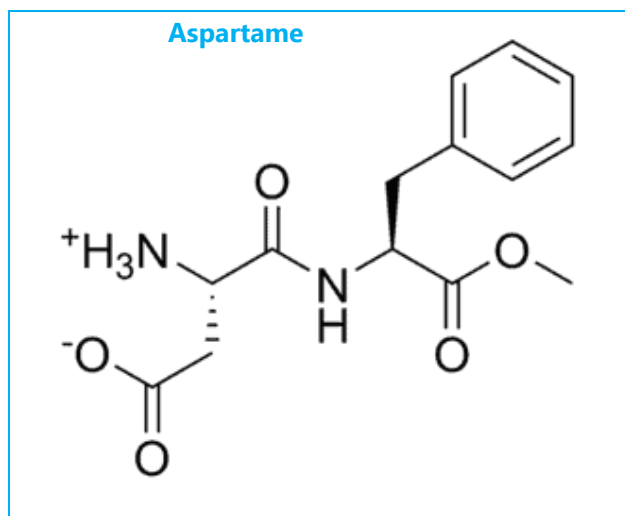
- Report stated that Sugar alternatives had undesirable effects like increased risk of type 2 diabetes, cardiovascular diseases, and mortality in adults.
- As per JECFA (the Joint WHO and Food and Agriculture Organization's Expert Committee on Food Additives), which is the WHO's expert committee on food additives, an adult weighing 60 kilos has to drink more than 12 cans of diet soda everyday to be at risk.

About Aspartame

- Aspartame, a popular artificial sweetener found in **Diet Coke, chewing gum, yoghurt and other food products.**
- It was discovered in 1965 by American chemist James Schlatter.
- Aspartame is about 200 times sweeter than the regular table sugar.
- It was approved by the US Food and Drug Administration in 1974 for use as a tabletop sweetener and as an additive in chewing gum, breakfast cereals and dry bases for foods.

Significance of Aspartame

- ✓ Despite its intense sweetness, aspartame has an almost zero calorific value and no bitter aftertaste like saccharin, and grew in popularity as a more diet-conscious consumer emerged.
- ✓ According to The European Food Safety Authority, aspartame is made of the two naturally occurring amino acids, phenylalanine and aspartic acid. They are also components of proteins in our body and in food.



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- ✓ The phenylalanine in aspartame gets slightly modified by adding a methyl group which gives aspartame its sweet taste.
- ✓ Aspartame also doesn't leave a bitter aftertaste like saccharine, which is 400 times sweeter than sugar but has to be mixed with other artificial sweeteners to curb its unpleasant side.

Other Artificial Sweetener

- ❖ Saccharin, sucralose and neotame are among five other artificial sweeteners alongside aspartame authorized by a WHO expert committee on food additives.
- ❖ Sucralose is a plant-based product but excess quantity is harmful because of its chemical processing in the industry, it comes with pellets or drops and specially for diabetic patients' higher quantity is not good.
- ❖ Stevia is the most acceptable artificial sweetener, but if only its used after boiling its leaves its good for consumption, but industrial processing puts patients at a higher risk as patients take them in higher quantity, in any case excess consumption of artificial sweeteners is not good for health,"

Concern with Aspartame

- Aspartame, one of the world's common artificial sweeteners is likely to be declared a possible carcinogen.
- Aspartame has been linked to behavioural and cognitive problems including learning problems, headache, seizure, migraines, irritable moods, anxiety, depression, and insomnia.
- Several studies link aspartame to weight gain, increased appetite, diabetes, metabolic derangement and obesity-related diseases.

Switch to natural alternatives

- ✚ Artificial sweeteners increase the risks of metabolic disorders, weight gain, and even negative impacts on gut health. Beverages that utilize non-sugar sweeteners have indeed become prevalent among individuals aiming to lose weight. However, it is important to recognize that these beverages can pose major health risks.
- ✚ "Regarding weight loss, rather than relying solely on artificial sweeteners, individuals should focus on adopting a balanced and nutritious diet.
 - This includes consuming whole foods, such as fruits, vegetables, lean proteins, and whole grains, while minimizing processed foods and added sugars. Hydration can be achieved through water, herbal teas, or infusions.
- ✚ Portion control and mindful eating are also crucial aspects of weight management. Moreover, staying physically active through regular exercise helps burn calories and maintain overall health.

Other foods that can cause cancer

- ⇒ Certain ways of cooking like heating food in plastic utensils, overuse of microwave and certain processed foods such as frozen sausages, preserved food, pickle preserved by nitrate, can be a cause of cancer.
- ⇒ Ajinomoto, artificial sweeteners, artificial colouring agents all are possible carcinogenic food items.
- ⇒ These foods can cause Oesophagus cancer, liver cancer, gall bladder cancer, stomach, colon, rectal cancers are on rise due to carcinogenic in our food.

Regulations

- ◇ Different countries have implemented regulations and policies regarding the use of aspartame. In the United States, the Food and Drug Administration (FDA) oversees the regulation of aspartame as a food additive.



ARTIFICIAL SWEETENERS
Weight Gain and Other Side Effects

- 1 ASPARTAME (NUTRASWEET, EQUAL)
- 2 SUCRALOSE (SPLENDA)
- 3 ACESULFAME K (SUNETTE, SWEET ONE)
- 4 SACCHARIN (SWEET 'N LOW, SWEET TWIN)
- 5 SUGAR ALCOHOLS (XYLITOL, SORBITOL, MANNITOL, ISOMALT)

HOW ARTIFICIAL SWEETENERS IMPACT HEALTH

- WEIGHT GAIN + OBESITY
- CANCER + TUMORS
- ALTER THE GUT MICROBIOME
- ADVERSELY IMPACT BLOOD SUGAR
- NEGATIVELY IMPACT DENTAL HEALTH

Natural Alternatives

HONEY	MOLASSES
MAPLE SYRUP	APPLE SAUCE
COCONUT SUGAR	FRESH & DRIED FRUIT
BANANAS	SWEET VEGGIES

MIT meghantelpner.com

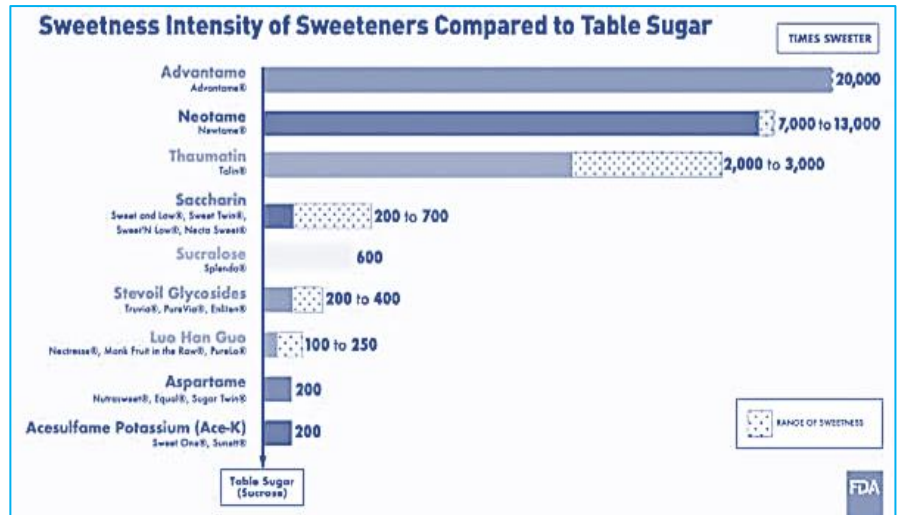
CURRENT CONNECT- JUNE- 23

◇ The FDA has established an Acceptable Daily Intake (ADI) limit for aspartame, which is set at 50 milligrams per kilogram of body weight.

- This means that on a daily basis, the average adult can safely consume up to this amount of aspartame without experiencing any harmful effects.

◇ Similarly, the European Union has also put forth regulations for aspartame. The European Food Safety Authority (EFSA) has recommended a slightly lower ADI for aspartame, specifically 40 milligrams per kilogram of body weight per day.

- ◇ The Indian government will set its own standards on artificial sweeteners such as aspartame.
- ◇ FSSAI is the major institution who research in the field of artificial sugar and give recommendation related to use of it.



Way Forward

- Artificial sweetener should be use carefully and in minor level.
- Proper research and study on it are required.
- People have to try to use natural sweetener rather than artificial sweetener.

PEPPER IT WITH

Artificial sweetener, diseases,
FSSAI, WHO

Biodegradable paper supercapacitor

News Excerpt

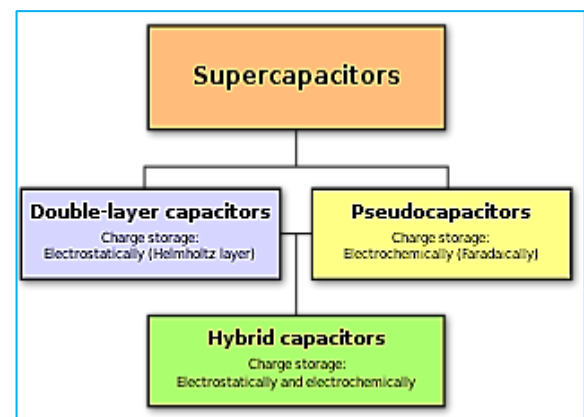
Recently, Scientists at Gujarat Energy Research and Management Institute (GERMI) have developed the thinnest, lightweight and biodegradable paper-based supercapacitor.

Pre-Connect

About Super capacitor

- A supercapacitor is an electrochemical charge storage device with a fast charging/discharging cycle, high power density and a longer lifecycle.
- A supercapacitor, also called an ultracapacitor, is a high-capacity capacitor, with a capacitance value much higher than other capacitors but with lower voltage limits.
- It bridges the gap between electrolytic capacitors and rechargeable batteries.
- Supercapacitors are constructed with two metal foils (current collectors), each coated with an electrode material such as activated carbon, which serve as the power connection between the electrode material and the external terminals of the capacitor.

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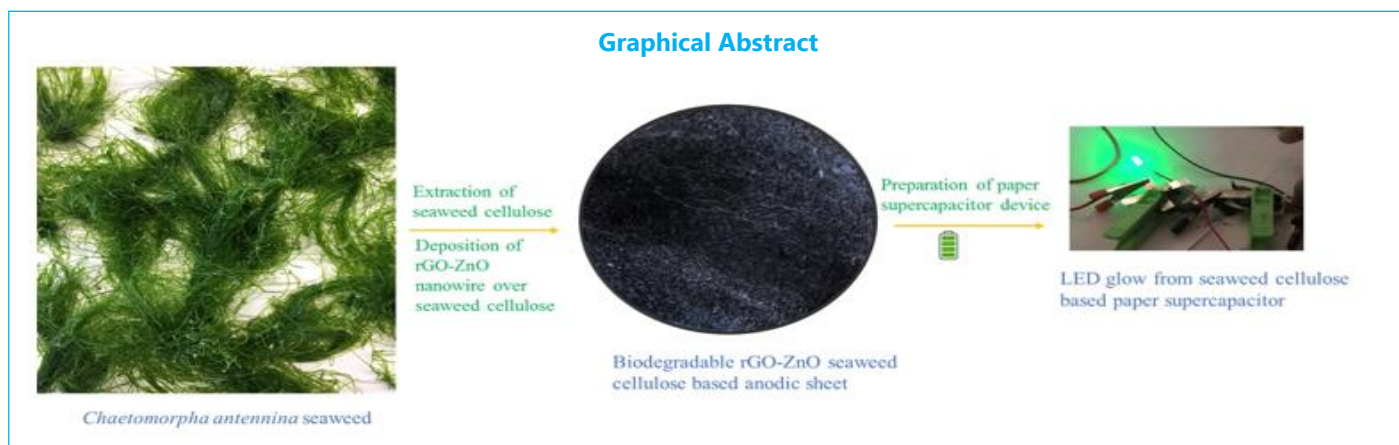


Marine Seaweed or macroalgae

- ❖ Seaweeds are macroalgae attached to rock or other substrata and are found in coastal areas, said Bhutiya. They are classified as chlorophyta (green), rhodophyta (red) and phaeophyta (brown) on the basis of their pigmentation.
- ❖ Among them, chlorophyta holds more potential components — carbohydrates, lipids, proteins and bioactive compounds — in the cell wall. Green seaweed has a high amount of a particular type of cellulose in its cell wall.
- ❖ The marine cellulose-based material used in developing the flexible and thinnest paper supercapacitor can be used in almost all smart electronic devices.
- ❖ It can also be a source of revenue for coastal communities that cultivate seaweed, an essential commodity for manufacturing the paper supercapacitor, the researchers noted.

About research

- The research was led by marine biopolymer scientist Dr. Syed Zaheer Hassan and Dr. Priyank Bhutiya.
- The cellulose nanofibers were extracted from green seaweed *Chaetomorpha antennina* which was collected from Porbandar, Gujarat in India.
- The fibers underwent bleaching treatment and were shaped into architectural structure like that of a spider web.
- Cellulose is found to be as most suitable biopolymer material for manufacturing paper-based electrode materials such as paper supercapacitors or batteries for energy storage applications. Cellulose itself is an insulating material that requires to be coated with conductive material to make a paper-based energy storage device.
- A very simple and handmade process was used by the researchers in making paper anode. They only have to make sure that the supercapacitor can be used as anode material in devices. To make this possible, the researchers grew the nanowires made from reduced graphene oxide (rGO) and zinc oxide (ZnO) over the cellulose nanofibers using a simple hydrothermal process. Then, it underwent a simple press method to turn the cellulose nanocomposite into a form of



paper supercapacitor.

- The developed seaweed-based electrode is used in an asymmetrical supercapacitor by sandwiching a sodium chloride electrolyte-soaked paper separator between two seaweed cellulose nanocomposites and activated charcoal powder slurry.
- The technology was supported by Brijesh Tripathi from Pandit Deendayal Energy University and Rahul Kapadia, who assisted in testing the device to 6,000 cycles for performance, which remained the same at all cycles without any noticeable degradation.
- The supercapacitor device was tested with various analytical techniques. The research was co-authored by M Abdul Rasheed and PL Srinivasa Rao from GERMi.

Biodegradable paper supercapacitor

- ✓ This supercapacitor which can fully charge a device within 10 seconds, has been developed from seaweed (marine macroalgae). The device is of high tensile strength and performance, as well as cost-effective, according to the researchers.
- ✓ The product can be used in electronics, memory backup systems, airbags, heavy machines, electric vehicles, etc.; hence, it holds a huge business prospect.
- ✓ It is the need of the hour to develop a flexible, lightweight, or cost-effective technology that can also work as a biodegradable energy storage device, according to the researchers.

Role of Biodegradable Materials in Sustainable Supercapacitors

- In the recent years, the impact of climate change due to carbon emission has become a major concern in the scientific community. The potential solution for this problem is by generating clean and sustainable energy, but it depends on the availability of renewable resources. Utilization of energy from these resources can only be made possible when there are efficient storage devices.
- Experts in the energy industry express their interest in using batteries and supercapacitors, but the rising demand for smart electronics leads to the unwanted accumulation of toxic wastes. Because of this, researchers are trying to look for affordable and environment-friendly components.
- Biodegradable nanomaterials have been shown to be effective components of energy storage devices. Because the production and recycling of these electrodes are based on biodegradable substances, then they almost leave zero waste in the environment.

PEPPER IT WITH

Biodegradable superconductor,
Seaweed, Nanotechnology

Chandrayaan-3

News Excerpt

Indian Space Research Organisation (ISRO) will launch Chandrayaan-3 spacecraft with the Launch Vehicle Mark-III (LVM3) at the Satish Dhawan Space Centre in Sriharikota which is scheduled to launch July 14.

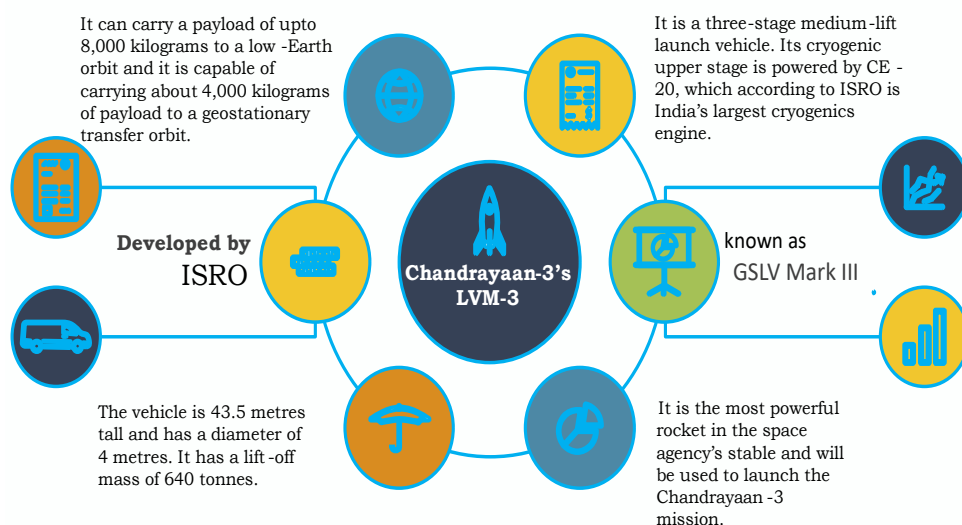
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LVM3:

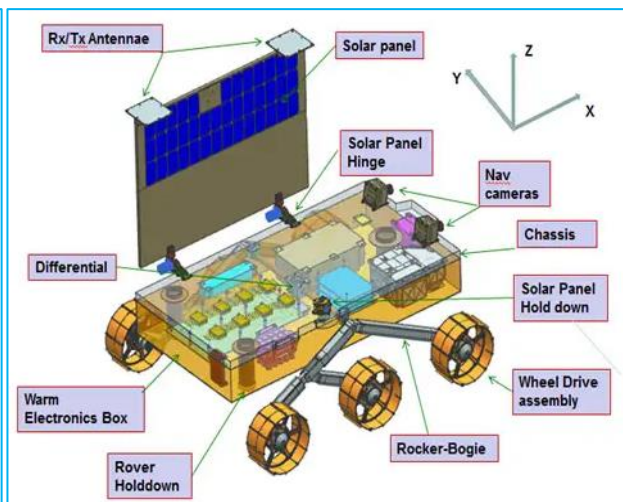
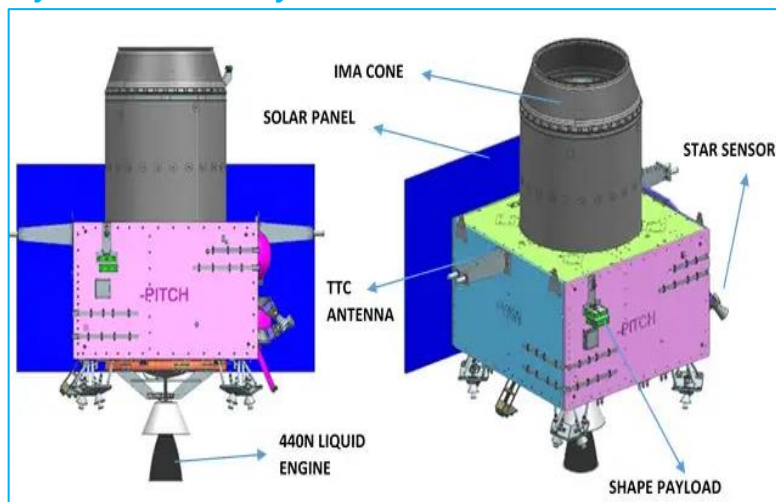
- LVM3 is the new heavy lift launch vehicle of ISRO for achieving a 4000 kg spacecraft launching capability to GTO (Geosynchronous Transfer Orbit) in a cost-effective manner.
- LVM3 is a three-stage launch vehicle consisting of two solid propellant S200 strap-ons and core stages comprising of L110 liquid stage, C25 cryogenic stage, the equipment bay (EB) and the Encapsulated assembly (EA).

Chandrayaan-3

- Chandrayaan-3 is a follow-on to the unsuccessful Chandrayaan-2 mission, and it has the same objective—to demonstrate the capability of soft landing on the Moon by delivering a lander and a rover to the lunar surface.
- The Chandrayaan-3 spacecraft consists of three parts—the lander module, propulsion module and a rover.
- The lander is designed to make a soft landing at a specific site on the Moon and deploy the rover. The rover will carry out chemical analysis of the lunar surface.
- Both the lander and the rover carry many scientific payloads for experiments on the lunar surface.
- The current mission will follow the same trajectory as Chandrayaan 2, where the propulsion module will orbit earth several times before being shot towards the moon. Once within the moon's gravitational pull, the module will lower itself to a 100 x 100 km circular orbit. Then, the lander will detach and descend to the surface.



Objectives of Chandrayaan-3



- ✓ To demonstrate Safe and Soft Landing on Lunar Surface
- ✓ To demonstrate Rover roving on the moon and
- ✓ To conduct in-situ scientific experiments.

How is Chandrayaan 3 different from Chandrayaan 2?

- Unlike Chandrayaan 2, the new moon mission spacecraft will not be carrying a rover aboard. Further, the Chandrayaan 3 spacecraft will carry a payload called Spectro-polarimetry of Habitable Planet Earth (SHAPE), which the previous mission did not have.
- SHAPE will study the spectral and polarimetric measurements of Earth from lunar orbit, which means that there are fewer chances of Chandrayaan 3 losing contact with ISRO and changing its trajectory, unlike the previous mission to the moon.

India's Future Space mission

NISAR: NISAR will map the entire globe in 12 days and provide spatially and temporally consistent data for understanding changes in Earth's ecosystems, ice mass, vegetation biomass, sea level rise, ground water and natural hazards including earthquakes, tsunamis, volcanoes and landslides.

Aditya-L1: Aditya L1 shall be the first space based Indian mission to study the Sun. The spacecraft shall be placed in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, which is about 1.5 million km from the Earth.

GAGANYAAN: Gaganyaan project envisages demonstration of human spaceflight capability by launching crew of 3 members to an orbit of 400 km for a 3 days mission and bring them back safely to earth, by landing in Indian sea waters.

Chandrayaan-2

- Chandrayaan-2 is the second lunar exploration mission developed by the Indian Space Research Organisation (ISRO), after Chandrayaan-1.
- It consists of a lunar orbiter, a lander, and the Pragyan rover, all of which were developed in India.
- The main scientific objective is to map and study the variations in lunar surface composition, as well as the location and abundance of lunar water.
- The spacecraft was launched on its mission to the Moon from the second launch pad at the Satish Dhawan Space Centre in Andhra Pradesh on 22 July 2019.
- The craft reached the Moon's orbit on 20 August 2019 and began orbital positioning manoeuvres for the landing of the Vikram lander.
- However, the lander crashed when it deviated from its intended trajectory while attempting to land on 6 September 2019.

PEPPER IT WITH

ISRO, Chandrayaan-2, LVM-III, GAGANYAAN, Aditya-L1

Electronic interlocking system

News Excerpt

An electronic track management system used by the railways has become the focus of investigations after horrific train crash involving two express trains and a goods train in Odisha's Balasore district.

Pre-Connect

KAVACH:

- The KAVACH is an indigenously developed Automatic Train Protection (ATP) system by the Research Design and Standards Organisation (RDSO) in collaboration with the Indian industry.
- It is a state-of-the-art electronic system with Safety Integrity Level-4 (SIL-4) standards. It is meant to provide protection by preventing trains to pass the signal at Red (which marks danger) and avoid collision. It activates the train's braking system automatically if the driver fails to control the train as per speed restrictions.
- It prevents the collision between two locomotives equipped with functional Kavach systems. The system also relays SoS messages during emergency situations.
- An added feature is the centralised live monitoring of train movements through the Network Monitor System.
- 'Kavach' is one of the cheapest, SIL-4 certified technologies where the probability of error is 1 in 10,000 years.
- The South-Central Railway (SCR) Zone is a pioneer in the

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#BharatKaKavach

Train Protection System

Developmental project of Kavach was undertaken on 250 RKM section of South Central Railway (Lingampalli-Vikarabad-Wadi & Vikarabad-Bidar)

Based on trials in developmental project, Kavach has been certified for Safety Integrity Level 4 by an independent Safety Assessor (which is highest level of safety certification)

Kavach was developed indigenously by RDSO in association with three Indian Vendors

Kavach has been approved by RDSO for speeds upto 160 kmph

Indian Railway has developed its own indigenous Automatic Train Protection (ATP) Systems for enhancing safety of running trains. The system is known as Kavach

Kavach has been adopted as the National Automatic Train Protection (ATP) System in 2020

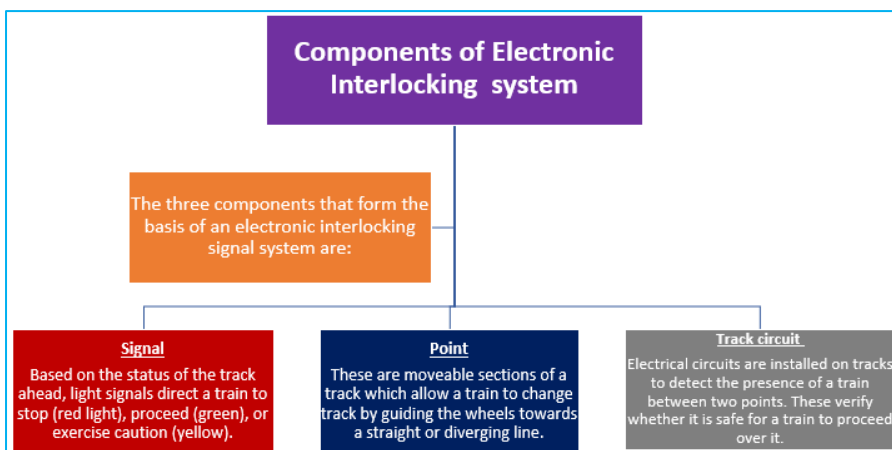
@RailMinIndia

implementation of the KAVACH – (TACS). The Kavach system has been deployed over 1,465 kms in the SCR limits in 77 locomotives and 135 stations till March this year.

About Interlocking system

- Railway traffic is controlled and managed by railway signalling. Interlocking, an integral part of it, involves a set of apparatus placed on a track to manage the safe movement of trains and track configuration at stations and junctions.
- It prevents conflicting movements as a train gets a signal to proceed ahead only when its route is set, locked, and detected as safe.
- The signal apparatus in an interlocking system may be interconnected mechanically or electrically with the tracks or both.
- Electronic interlocking (EI) is an advanced version of signalling that uses computer-based systems and electronic equipment to control signals, points and level-crossing gates.**

- The Indian Railways defines it as a "microprocessor-based interlocking equipment to read the yard and panel inputs; process them in a 'fail-safe' manner and generate required output."
- Unlike the conventional relay interlocking system, the "interlocking logic" in an EI system is managed via software and electronic components.
- It ensures all elements work together in proper sequence so that trains can move without coming in the way of one another.



- Electronic systems, communication devices that control signalling equipment and other components are kept in relay rooms with dual-lock access control. All system activities are recorded in a 'data logger', which is similar to the black box of an aircraft.

Working of system

- The system receives a command, following which information is collected from the yard and processed to set a safe route.
- The determined route is aligned, and signalling devices are interlocked at a particular position. A signal to pass is given based on which direction the track is set and whether the divergent track is free of obstruction.
- If a train is required to switch lines, then the system will direct it to the empty track at the point where two lines meet. Track circuits, meanwhile, prevent multiple trains from running on that block to avoid a collision.
- All points remain locked until the train has crossed a particular section of the track in use or the signal to proceed has been withdrawn.
- In case there is a failure in the system, the red light will be flashed, indicating that the route ahead is not clear or safe.

PEPPER IT WITH

Interlocking system, electronic interlocking, Railway traffic control, KAVACH

The Solar Ultraviolet Imaging Telescope (SUIT)

News Excerpt

The Solar Ultraviolet Imaging Telescope (SUIT), a unique space telescope developed by Pune's Inter-University Center for Astronomy and Astrophysics (IUCAA), is now ready and has been delivered to the Indian Space Research Organisation (ISRO).

Pre-Connect

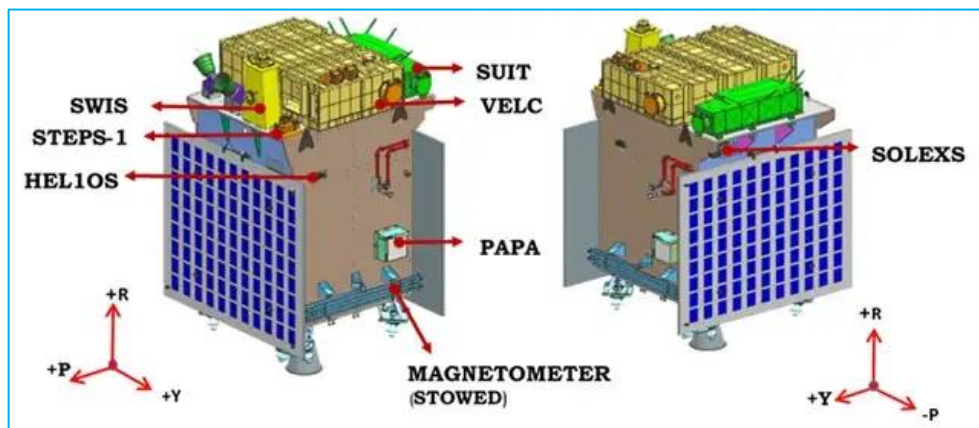
Aditya-L1 mission

- ADITYA-L1 will be ISRO's first space observatory dedicated to studying the Sun. It will fly approximately 1.5 million kilometers from Earth to the L1, or Lagrange point 1, which is one of the five favourable spots for observing the Sun.
- The mission aims to provide regular images and updates on the Sun's surface phenomena and space weather.
- The Aditya-L1 mission will carry seven different payloads capable of studying various phenomena on the Sun across the electromagnetic spectrum and solar wind.

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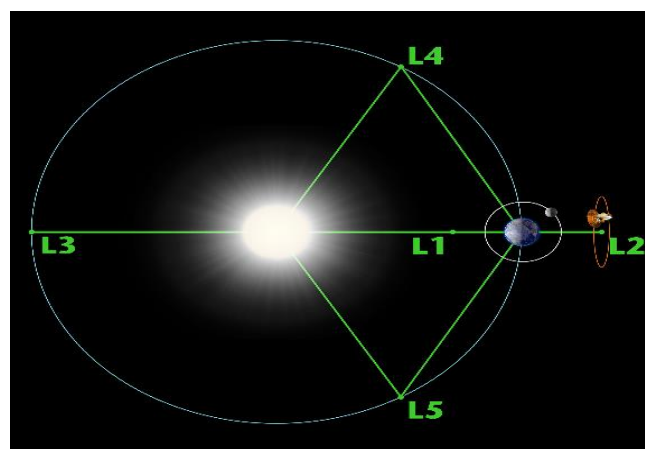
Science objectives of Aditya-L1 mission

- Study of Solar upper atmospheric (chromosphere and corona) dynamics.
- Study of chromospheric and coronal heating, physics of the partially ionized plasma, initiation of the coronal mass ejections, and flares
- Observe the in-situ particle and plasma environment providing data for the study of particle dynamics from the Sun.
- Physics of solar corona and its heating mechanism.
- Diagnostics of the coronal and coronal loops plasma: Temperature, velocity and density.
- Development, dynamics and origin of CMEs.
- Identify the sequence of processes that occur at multiple layers (chromosphere, base and extended corona) which eventually leads to solar eruptive events.
- Magnetic field topology and magnetic field measurements in the solar corona.
- Drivers for space weather (origin, composition and dynamics of solar wind).



Lagrange Points

- ❖ Lagrange points are positions in space where objects sent there tend to stay put.
- ❖ At Lagrange points, the gravitational pull of two large masses precisely equals the centripetal force required for a small object to move with them.
- ❖ These points in space can be used by spacecraft to reduce fuel consumption needed to remain in position.



Solar Ultraviolet Imaging Telescope (SUIT)

- ✓ The telescope is set to be integrated with the ADITYA-L1 mission.
- ✓ SUIT will record such images, which will be crucial for maintaining the Ozone and Oxygen content in the atmosphere of the Earth.
- ✓ SUIT will also measure the UV radiation hazardous for skin cancer.
- ✓ Integrated with Aditya-L1 mission The SUIT telescope will address fundamental questions such as the existence of a higher temperature atmosphere above the cooler surface of the Sun and the origin and variation of near-ultraviolet radiation and high-energy solar flares.
- ✓ Through SUIT, scientists will have a seamless measurement of solar radiation from Hard X-ray to Infrared, as well as in-situ measurements of particles in the solar wind, including the Sun's magnetic field at the L1 point.
- ✓ The SUIT project involved over 200-300 scientists over the last ten years. In addition to the initial grant of Rs 25 crore from ISRO for the hardware, scientists faced several challenges during the development of the payload, including building an ultra-clean room and designing special filters to capture the radiation.

Significance of Aditya-L1 mission

- It will help in Understanding the effect of the Sun on the Earth and its surroundings has become very important now and Aditya-L1 aims to shed light on this topic.
- It will be able to observe the corona continuously and the data provided by it is expected to answer many outstanding problems in the field of solar astronomy.
- Its success will be ISRO's and India's big achievement and it will help to outreach the ISRO's market and India's Power and ability in the space sector.

PEPPER IT WITH
ISRO, Aditya-L1 mission, SUIT

Challenges of Aditya-L1 mission

- ✚ The distance between Sun and Earth is (approximately 15 crore km) issue.
- ✚ The chances of the collision with other satellite in space are high since it has moving components.
- ✚ This is the first time ISRO sending a satellite to sun thus well-planned implementation is a bigger challenge.

Conclusion

The Aditya-L1 mission with SUIT technology will significantly advance our knowledge of the sun and its effects on the Earth and represents a huge step forward for India in the fields of space science and solar research.

Sodium-ion batteries

News Excerpt

In recent years, considerable attention has been focused on the development of sodium-ion batteries.

About Sodium Battery

- Sodium batteries are a burgeoning field in energy storage research, aiming to supplant conventional lithium-ion batteries by leveraging sodium ions for electrochemical energy storage and retrieval.
- These batteries employ sodium as a viable alternative to lithium, capitalizing on its greater abundance, enhanced cost-effectiveness, and reduced environmental impact.
- Sodium is widely available and less expensive compared to lithium. Sodium batteries utilize sodium ions, making them a cost-effective option for large-scale energy storage.
- Sodium batteries offer a greener alternative as they don't deplete scarce resources or pose significant environmental concerns.
- Sodium batteries are considered safer than traditional lithium-ion batteries. They have higher thermal stability, reducing the risk of thermal runaway or fire hazards, which improves overall battery safety.

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Difference between Lithium Batteries and Sodium Batteries

<ul style="list-style-type: none"> Sodium is more than 500 times more abundant than lithium. It can also be extracted from seawater at a low cost. 	<ul style="list-style-type: none"> Lithium availability is limited to a few countries, which is why prices have risen more than seven-fold since 2021.
<ul style="list-style-type: none"> Sodium is more environmentally friendly and can be transported at zero volt, making it safer. 	<ul style="list-style-type: none"> Lithium is less environmentally friendly than sodium and must be always stored with a minimum charge, increasing fire risks.
<ul style="list-style-type: none"> A Sodium-ion battery uses aluminium which is cheaper than copper. 	<ul style="list-style-type: none"> Lithium-ion battery uses copper, which is three or four times more expensive than aluminum used on sodium batteries
<ul style="list-style-type: none"> Sodium-ion battery has a higher operating temperature range. This means these can be used in more extreme temperatures without the risk of thermal runaway. 	<ul style="list-style-type: none"> Lithium-ion battery has lower operating temperature range and can cause fire if operated in higher temperatures.
<ul style="list-style-type: none"> Sodium-ion battery charges faster than lithium-ion variants and have a three times higher lifecycle. 	<ul style="list-style-type: none"> Lithium-ion battery has a slow charge rate and smaller lifecycle compared to sodium-based batteries.

Possible Advantages

The successful development and commercialization of sodium batteries have the potential to revolutionize the energy storage landscape, enabling sustainable and scalable solutions for renewable energy integration, electric vehicles, and grid-level storage.

- **Electric Vehicle Adoption:** Sodium batteries can help boost India's EV adoption by providing a viable alternative to traditional lithium-ion batteries. The abundance and lower cost of sodium make it a promising choice.
- **Enhanced Energy Storage:** Sodium batteries offer significant energy storage capabilities, which can support the integration of renewable energy sources like solar and wind power.
- **Improved Energy Access:** Sodium batteries can play a crucial role in providing reliable and sustainable energy access to remote and off-grid areas in India.
 - By storing electricity from renewable sources, sodium batteries can power off-grid communities, improving their quality of life and supporting economic development.
- **Sustainable Electric Mobility:** By reducing reliance on fossil fuels, sodium-powered EVs can help decrease greenhouse gas emissions and combat air pollution, thereby improving air quality and public health.
- **Domestic Manufacturing and Job Creation:** Developing a robust sodium battery industry will create job opportunities across India.

Limitations

- ✓ Sodium-ion batteries generally have lower energy density, they can store less energy per unit of weight or volume, which may result in shorter operating times or reduced driving ranges in electric vehicles.
- ✓ Sodium-ion batteries currently have a limited cycle life, meaning they may degrade and lose their capacity to store and deliver energy after a certain number of charge and discharge cycles.
- ✓ Finding suitable electrode materials for sodium-ion batteries is still a challenge.
- ✓ Sodium-ion batteries generally exhibit slower charging rates, that can lead to longer charging times, which may be inconvenient for users.
- ✓ Sodium-ion batteries are still in the early stages of development and commercialization. The infrastructure to support their widespread adoption, including manufacturing facilities, recycling systems, and charging networks, is not as well-established as it is for lithium-ion batteries.

Conclusion


Sodium-ion batteries offer promise as a cost-effective and environmentally friendly alternative. However, challenges remain in terms of energy density, cycle life, and infrastructure development, necessitating further research and development efforts for their widespread adoption.

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SECURITY

Ballistic missile 'Agni Prime'

News Excerpt

Recently, the new generation ballistic missile, 'Agni Prime', was successfully flight-tested by Defence Research and Development Organisation (DRDO) from Dr APJ Abdul Kalam Island off the coast of Odisha.

About Agni prime

- This was the first pre-induction night launch conducted by the users after three successful developmental trials of the missile, validating the accuracy and reliability of the system.
- The purpose of the trial of the sea-based missile was to engage and neutralize a hostile ballistic missile threat thereby elevating India into an elite club of nations having such a capability.
- India has been developing capabilities to intercept hostile ballistic missiles both inside and outside the earth's atmospheric limits.
- In April 2023, India successfully carried out the maiden flight trial of an endo-atmospheric interceptor missile from a ship off the coast of Odisha in the Bay of Bengal as part of its ambitious ballistic missile defence programme.
- The Agni 1 to 4 missiles have ranges from 700 km to 3,500 km and they have already been deployed.
- In December 2022, India successfully test-fired Agni-V missile that can strike targets at ranges up to 5,000 km.
- Agni-V can bring almost the entire Asia including the northernmost part of China as well as some regions in Europe under its striking range.

The Integrated Guided Missile Development Programme (IGMDP)

- The Integrated Guided Missile Development Programme (IGMDP) was conceptualized by Dr. APJ Abdul Kalam, a renowned scientist with the purpose to make India self-sufficient in missile technology.
- The team included members from the Defence Research and Development Organisation (DRDO), Army, Navy, Air Force, and Defence Production.
- On July 26, 1983, the IGMDP received approval from the Government of India.
- The ambitious project brought together India's scientific community, academic institutions, research and development laboratories, industries, and the three Services.
- The collaborative efforts aimed to create strategic indigenous missile systems.

The missiles developed under the programme were:-

1. Short-range surface-to-surface ballistic missile Prithvi
2. Intermediate-range surface-to-surface ballistic missile Agni
3. Short-range low-level surface-to-air missile Trishul
4. Medium-range surface-to-air missile Akash
5. Third generation anti-tank missile Nag

The Agni, which was initially conceived as a technology demonstrator project in the form of a re-entry vehicle, was later upgraded to a ballistic missile with different ranges.

After achieving the goal of making India self-reliant in missile technology, DRDO on January 8, 2008, formally announced successful completion of IGMDP.

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Agni Prime**Shot in the arm**

- Agni-P's range of 1,000-2,000 km is too short to reach targets in China's mainland, but can cover all of Pakistan's territory
- Being a canisterised missile, it can be transported easily and fired at very short notice
- It will replace the Prithvi, Agni-1 and Agni-2 missiles in India's arsenal that were built two decades ago with tech now considered obsolete
- It will enter service as a two-stage, solid propellant missile. Both stages will have composite rocket motors and guidance systems with electro-mechanical actuators
- Agni-P and Agni-5 originate from the Integrated Guided Missile Development Programme launched by then DRDO chief Dr APJ Abdul Kalam in the early 1980s

INDIAN ARMY'S AIR DEFENCE WIDENS WINGS

About

The Indian Army's reorientation from the western borders to the northern borders in the aftermath of the 2020 standoff with China, along with lessons from the ongoing war in Ukraine, are impacting the ongoing transformation of the Army Air Defence (AAD).

India's Initiatives

Networked automation

- The nearly ₹2,000 crore contract for Akashteer, a networking and automation project on the same lines as the Indian Air Force's Integrated Air Command and Control System network, was signed in March 2023.
 - It is a major initiative and the entire implementation should be done by March 2024.
- Akashteer will link all the radars and control centres of AAD and consolidate the air defence picture, removing duplications or overlaps and also integrate all the weapons.
 - It will also be able to communicate with the IAF's network.

- ❖ The Army Air Defence — called Air Defence Artillery till 2005 — has been in existence since 1940, though its ground-based air defences have increasingly moved to the Air Force.
- ❖ The modernisation of the AAD has stagnated post-1996; over the last decade too, several attempts at procurement in various segments were unsuccessful.
- ❖ It has now picked up pace and with the push for indigenisation, there are several made-in-India systems coming in, defence sources noted.

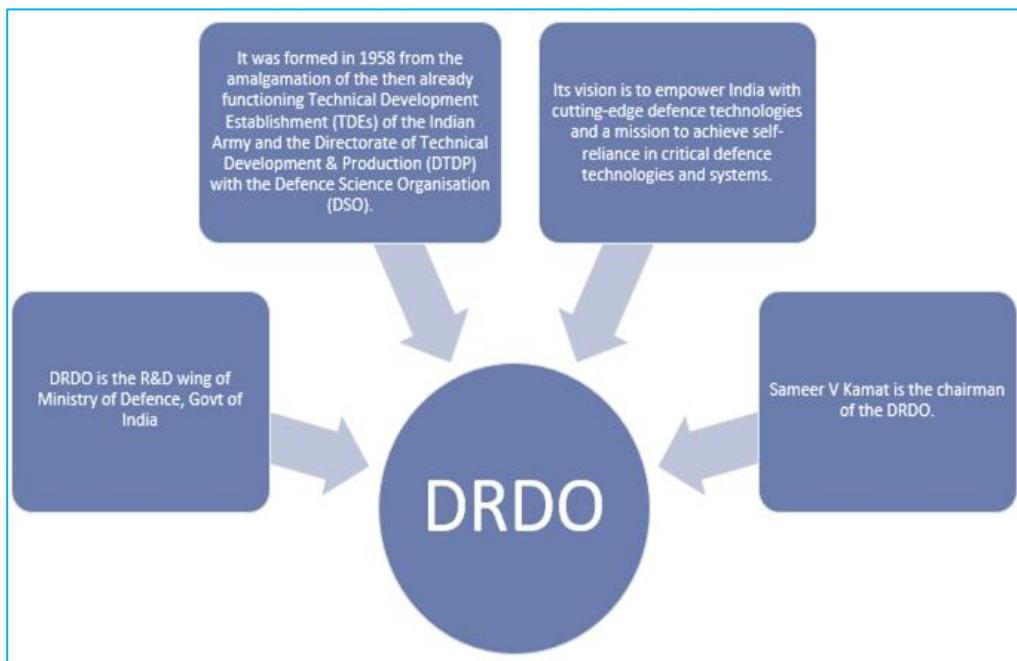
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Shifting focus

- Before the 2020 standoff with China, the Army's focus was predominantly on India's western border with Pakistan. However, air defence requirements on the northern borders are different from the western front; the need is for light-weight radars and weapon systems with mobility for deployment in the mountains while catering to the infantry's requirements.
- The war in Ukraine has also changed the requirements, forcing the army to factor in new threats to air defence such as unmanned aerial vehicles or UAVs, loitering munitions, swarm drones and cruise missiles.

New technology

- The Ukraine conflict has shown that Man Portable Air Defence Systems (MANPADS) are highly effective when in range with night vision enabled. The Indian Army is focussing on laser beam-riding MANPADS and has already initiated the procurement process.
- Another focus area is gallium nitride-based modules for radars which can significantly reduce weight, a critical factor in the mountains.
- Another emerging threat to air defences is loitering munitions, for which the best counter is high-rate gun systems, better optic sights, fragmented ammunition and active electronically scanned array radars.



Inducting new SAMs

Defence Ministry signed a contract worth more than ₹8,160 crore with Bharat Dynamics Limited for two regiments of improved Akash surface-to-air missile systems.

SAGAR SAMRIDDHI

News Excerpt

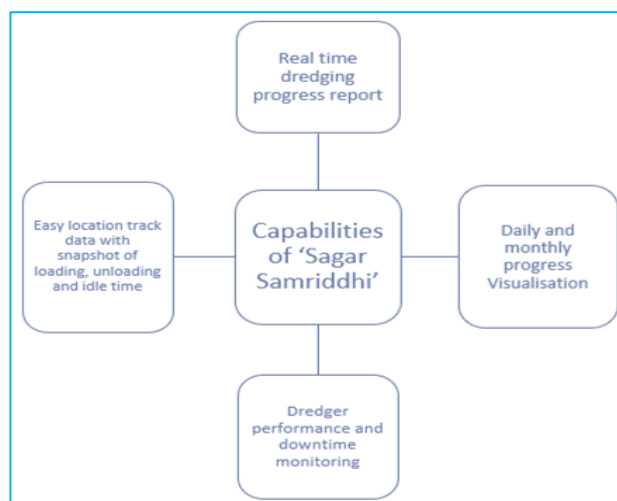
Recently, Union Minister of Ports, Shipping & Waterways (MoPSW) launched 'SAGAR SAMRIDDHI' - the online dredging monitoring system - in order to accelerate 'Waste to Wealth' initiative.

SAGAR SAMRIDDHI

- This system has been developed by National Technology Centre for Ports, Waterways and Coasts (NTCPWC) the technological arm of MoPSW.
- The new technology brings in marked improvement against the old system of Draft & Loading Monitor (DLM) system.
- The system will bring in synergy among multiple input reports like daily dredging report, the pre and post dredging survey data before processing and producing real time dredging report.
- The 'Sagar Samriddhi' monitoring system will also allow Daily and monthly progress Visualisation, Dredger performance and downtime monitoring, easy location track data with snapshot of loading, unloading and idle time. This system strengthens the Atmanirbhar Bharat and Make in India vision.
- To address the objective of carrying out dredging with essential technical investigation the MoPSW issued 'Dredging Guidelines for Major Ports' in 2021.
- The Dredging Guidelines outlined the procedure for planning and preparation, technical investigations, dredged material management, estimating the cost of dredging etc., to enable the Major Ports to formulate the dredging projects in order to complete in time.
- In March 2023 Ministry issued Addendum to the Dredging Guidelines 2021 for Major Ports for disposal of dredged material by incorporating a necessary provision in bidding documents which will help in reducing the dredging cost in form of 'Waste to Wealth'.
- It outlines a wide range of beneficial use of dredged material including engineering use for construction purposes, environmental enhancement including beach nourishment etc. to bring down the cost of the dredging.

NTCPWC

- The NTCPWC was established under the Sagarmala Programme of MoPSW with the total investment of ₹ 77 Crores at IIT Madras which was inaugurated by the Minister on 24th April 2023.
- The aim of the centre is to enable research & development for the marine sector, enabling solutions towards achieving the ultimate goal of building a robust marine industry in the country.



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Armed Drones Deal

News Excerpt

Recently, India's defence ministry on Thursday approved the acquisition of 31 MQ-9B armed drones from the US.

Armed Drones Deal

- The clearance for procuring the drones made by General Atomics was given by a meeting of the Defence Acquisition Council (DAC) chaired by defence minister.
- India is expected to buy the drones, which have an endurance of more than 27 hours and can operate at up to 50,000 feet, in a deal worth a little more than \$3 billion.
 - Fifteen drones will be for the navy, and eight each for the army and the air force.
- India and the US have engaged in talks on the acquisition of the drones for almost eight years, primarily to bolster the Indian armed forces' surveillance capabilities. The Indian Navy currently operates two MQ-9 drones leased from the US in November 2020.

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- The acquisition of the drones gained urgency after the military standoff with China in the Ladakh sector of the Line of Actual Control (LAC) began in May 2020, increasing the Indian military's need to enhance its vigil along the disputed border.

- The defence ministry's "acceptance of necessity" is the first step in the formal procurement process, which will need to be cleared by the Cabinet Committee on Security (CCS) chaired by the Prime Minister. The two sides will also need to conclude negotiations on the final pricing of the drones.

UAVs are already in service

- The Indian Navy has leased two MQ-9As from General Atomics with the maiden flight taking place on November 21, 2020. In their two years of operation till November 2022, they had completed 10,000 flight hours.
- India's DRDOs in the final stages of development of its indigenous drone RUSTOM II, also known as TAPAS (Tactical Airborne Platform for Surveillance Past Horizon). Significantly, RUSTOM drones will use Indian GPS GAGAN (GPS Aided Geo Augmented Navigation) developed by ISRO. RUSTOM can be controlled upto 100 km away via line-of-sight system and beyond that by SATCOM. It can carry payloads upto 350 kgs. With its array of sensors, it is capable of monitoring at least 250 km inside enemy territory.



MQ-9B
Predator Drones

Max Gross Takeoff Weight: 5,670 kg
Fuel Capacity: 2,721 kg
Payload Capacity: 2,177 kg across 9 hardpoints (8 wing, 1 centerline)

Crew:
Two pilots in ground control stations

Weapons
Laser guided missiles
Anti-tank missiles
Anti-ship missiles

Missions

- Humanitarian Assistance/Disaster Relief
- Search and Rescue
- Law Enforcement
- Border Enforcement
- Defensive Counter Air
- Airborne Early Warning
- Electronic Warfare
- Anti-Surface Warfare
- Anti-Submarine Warfare
- Airborne Mine Counter Measures
- Long-Range Strategic ISR
- Over-the-Horizon Targeting



MQ-9B Predator
Variants: SkyGuardian / SeaGuardian

COST
\$3 Billion for 30 drones

MAX AIR SPEED
388 km/h

MAX RANGE
11,112 km

MAX ENDURANCE
40 hours

MAX ALTITUDE
>40,000 ft MSL

WING SPAN: 79 FT
LENGTH: 38 FT

ART & CULTURE

Sengol

About

Recently, Indian prime minister installed a historic sceptre 'Sengol' next to the Lok Sabha Speaker's seat in the newly constructed Parliament building.

About Sengol

- Sengol comes from a Tamil word "Semmai" which means righteousness.
- It is a sceptre made of gold and silver and is decorated with many precious stones. The Sengol is 5 feet long and carries a golden orb at the top. The orb has a carving of Nandi, the bull that is precious to Lord Shiva.
- The Sengol is a powerful symbol of the Chola Kings authority and their commitment to justice.
- Sengol is considered to be the symbol of justice, transfer of power, and good governance. It was presented to India's first Prime Minister Jawaharlal Nehru on August 14, 1947. This was marked as the transfer of power from the British Government to India.
- On 28 May 2023, after a gap of more than 75 years, the very same Sengol has been signified as the transfer of power symbol.
- The sceptre is a reminder of India's rich history and the culture. It originated from the Chola dynasty which was one of the most important and powerful dynasties in the history of India.
- "Sengol symbolises a just and fair governance by a king. Its converse is authoritarianism or Kodungol in Tamil. Sengol finds reference even in Tholkappiyam, the earliest treatise on Tamil grammar,"
- Sengol was one of the 10 constituents of a kingdom besides venkotrakudai (white umbrella), murasu (drum), kodi (flag), thanai (Army), aaru (river), malai (mountain), thar (garland), yaanai (elephant) and kuthirai (horse). Different literary works have included different things.
- It was created during the time of Independence in 1947 when the British handed over power to India. It was made by Vummidi Bangaru Jewellers, a well-known jeweller in Chennai.

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'Sengol' etched in history

A symbol of governance in Tamil kingdoms of yore, Sengol was made by then Madras-based jeweller Vummidi Bangaru Chetty along with Vummidi Ethirajulu and Vummidi Sudhakar. It was displayed at the Allahabad Museum after being handed over to Jawaharlal Nehru

SYMBOL OF INDIAN INDEPENDENCE

Lord Mountbatten asked Nehru about a ceremonial transfer of power, following which the latter consulted C Rajagopalachari or Rajaji, who identified the Chola dynasty's model where the transfer of power from one king to the other was sanctified and blessed by high priests. He approached the Dharmic Mutt in Tamil Nadu's Tanjore district – the Thiruvavaduthurai Adheenam. The leader of the Adheenam commissioned jeweller Chetty for Sengol's preparation.

FROM THE ARCHIVES:
In a report on August 17, 1947 HT presented details of the ceremony

SCEPTRE HANDED OVER TO NEHRU

Three people were flown in from Tamil Nadu – deputy high priest of Adheenam, a Nadaswaram player and Oduvar (singer) – who came carrying the Sengol and conducted the proceedings. The priest gave the Sengol to Mountbatten, and took it back. The Sengol was purified with holy water and then taken in a procession to Nehru's house, where it was handed over to him. A special song was rendered, as told by the high priest.

India's first prime minister Jawaharlal Nehru holds the sceptre

Made of silver and gold

Gandhi Peace Prize 2021

News Excerpt

The Gandhi Peace Prize for the year 2021 is being conferred on Gita Press, Gorakhpur.

Gandhi Peace prize

- Gandhi Peace Prize is an annual award instituted by Government of India in 1995, on the occasion of 125th Birth Anniversary of Mahatma Gandhi as a tribute to the ideals espoused by Mahatma Gandhi.

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- The award is open to all persons regardless of nationality, race, language, caste, creed or gender.
- The award carries an amount of Rs. 1 crore, a citation, a plaque and an exquisite traditional handicraft/handloom item.
- Recent awardees include Sultan Qaboos Bin Said Al Said, Oman (2019) and Bangabandhu Sheikh Mujibur Rahman (2020), Bangladesh.
- The Jury headed by the Prime Minister, after due deliberations on 18th June, 2023 unanimously decided to select Gita Press, Gorakhpur as the recipient of the Gandhi Peace Prize for the year 2021, in recognition of its outstanding contribution towards social, economic and political transformation through non-violent and other Gandhian methods.

Gita press, Gorakhpur

- It was Established in 1923.
- Gita Press is one of the world's largest publishers, having published more than 41 crore books in over a dozen languages, including 16.21 crore Shrimad Bhagvad Gita.
- The institution has never relied on advertisement in its publications, for revenue generation.
- Gita Press along with its affiliated organizations, strives for the betterment of life and the well-being of all.



Ram Prasad Bismil

About

Recently on 11th June, Ram Prasad Bismil's 126th birth anniversary celebrated.

Early life

- He was born on June 11, 1897 in a nondescript village in the United Provinces' (now Uttar Pradesh) Shahjahanpur district.

- Born into a Rajput Tomar family, he learnt Hindi from his father and Urdu from a maulvi who lived nearby. He also went to an English medium school in Shahjahanpur. His exposure to multiple languages would develop his instincts as a writer and poet at a very early stage in his life.
- He joined the Arya Samaj and became a prolific writer and poet, penning patriotic verses in Hindi and Urdu under pen names like 'Agyat', 'Ram', and the one that is most known – 'Bismil'
- At the age of only 18, he penned the poem Mera Janm (My Birth), venting out his anger over the death sentence handed out to Arya Samaj missionary Bhai Parmanand.

The Mainpuri Conspiracy, 1918

- Ram Prasad Bim formed a revolutionary organisation named Matrived (Altar of Mother), and sought help from Gends Lal Out, a school teacher from Auraiya, who had established the first independent secret society in UP named Shivaji Samiti.
- Bum and Dixit got involved in the Mainpuri Conspiracy in which they distributed prohibited literature. On 28 January, 1918, Bamil distributed two of his writings to people a pamphlet titled Destwasyon ke Naam Sandesh (A Message to Countrymen) and Mainpuri Pratigy (Vow of Mainpuri)

The Kakori Train Action, 1925

- The train robbery at Kakori was the HRA's first major action, in August 1925 The Number Down Train ran between Shahjahanpur and Lucknow. On fateful day, it carried treasury bags meant to be deposited in the bish treasury in Lucknow
- The revolutionaries planned to rob the money, which they believed legitimately belonged to indians anyway. Their objective was both to fund the HRA and garner public attention for their work and mission
- On August 8, 1925, as the train was passing the Kakori station, about 15 km from Lucknow revolutionaries looted the train and exceto lucknow

Hindustan Republican Association, 1924

- **Hindustan Socialist Republican Association (HSA)**, previously know the **Hindustan Republican Army** and **Hindustan Republican Association (MRA)**, was a radical left wing indian revolutionary
- This organization founded by Ram Prasad Bim Ashfaquilla Khan, Sachindra Nath Baksh Sachindranath Sanyal and logesh Chandra Chatterjee A written constitution and published a manifesto titled The Revolutionary, were produced as evidence in the Kakon conspiracy case of 1925.

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Revolutionary life

- He is one of India's most revered freedom fighters, known as much for his revolutionary zeal as for his poetic profundity.

- Fighting against the British Raj, he was involved in the Mainpuri Conspiracy of 1918 as well as the more famous Kakori Train Action of 1925.
- He founded the Hindustan Republican Association (HRA, later Hindustan Socialist Republican Association) and was hanged for his revolutionary activities in 1927.
- Ram Prasad Bismil has also become a **symbol of communal harmony** due to his close friendship with fellow revolutionary poet Ashfaqullah Khan. In his last letter, written just before his hanging, Bismil made an enduring call for Hindu-Muslim unity in the service of the nation.
- After an eighteen-month long trial (for their involvement in the Kakori train action), Bismil, Ashfaqullah and Rajendranath Lahiri were sentenced to death. The sentence was carried out on December 19, 1927. Ram Prasad Bismil was just 30 years old when he died.

PEPPER IT WITH

Mainpuri conspiracy, Kakori train action, HRA, HSRA,

Lord Jagannath's 'Rath Yatra'

About

Recently, Ratha Yatra, also known as the Gundicha Yatra or chariot festival of Lord Jagannath, Devi Subhadra, and Lord Balabhadra, was celebrated.

About Lord Jagannath's Rath yatra

- As per the Odia calendar, this festival is celebrated on the second day of Shukla Paksha of ashadha month.
- Lakhs of devotees from the state, as well as every part of the country, travel to the city of Puri, to catch a glimpse of the three deities, Lord Jagannath, Lord Balabhadra, and Devi Subhadra as they are carried in ornate chariots (made from neem wood) called Rathes which are pulled by the devotees.
- The auspicious festival begins with the Snana Yatra where the three deities are washed thoroughly in Ganges water. This is followed by the Anasara period where the deities are laid to 'rest'.
 - Thereafter, deities are carried to the Gundicha Temple where they reside for about eight to nine days. Afterwards they return to their temple through a procession known as Bahuda Yatra.

Jagannath Temple

The Jagannath Temple at Puri is one of the most revered Vaishnava sites of worship in India

The main temple of Shri Jagannath an impressing and amazing structure constructed in Kalinga architecture, with a height of 65 meters placed on an elevated platform

It was constructed by a famous king of Ganga Dynasty Ananta Varman Chodaganga Deva dating back to 12th century at the seashore part

Shri Jagannath Puri Temple is one of the most impressing monuments of the Indian State Odisha

Religious Significance

- As per Hindu sacred texts such as the Brahma Purana, Padma Purana, Kapila Samhita etc, Subhadra, the younger sister of Lord Jagannath and Balabhadra desired to travel to Puri where her aunt lived.
- To fulfill her wish, the two brothers left for the city in a chariot. Since the 1500s (the first festival dates back to 1558), the people of Puri have celebrated this annual procession to commemorate the divine sibling's journey from their paternal home to aunt's home.
- The Rath Yatra, is the only Hindu festival where deities are taken from their 'home' and placed elsewhere.
- All the three chariots in which the deities are carried have their own name. Lord Jagannath's chariot is referred to as Nandighosh while the chariots of Lord Balabhadra and Devi Subhadra is called Taladhwaaja and Darpadalana respectively.
 - Only women devotees pulled the chariot of Devi Subhadra.
- The three deities were pulled in chariots in a procession known as 'GotiPahandi' a day after Rath Yatra on Tuesday at Baripada, known as the second 'Srikhetra' after Puri.

PEPPER IT WITH

Jagannath rath yatra, Jagannath temple

International Yoga Day

News Excerpt

Recently, on 21st June, 2023 India celebrated the 9th international yoga day. Besides spreading awareness about the benefits of yoga and meditation worldwide, this time, India promoted the skill of its tribal artisans.

Key points

- **The Tribal Cooperative Marketing Development Federation of India Ltd (TRIFED)** is collaborating with Ministry of Ayush to supply 34,000 yoga mats procured exclusively from tribal artisans across the country. These will bear the distinct designs and motifs representative of their respective communities.
- Each mat is a vibrant testament to the diverse cultural heritage of India's tribes, reflecting their stories, folklore, and artistic legacy according to Ministry of Tribal Affairs.
- The effort is aimed at celebrating India's rich cultural heritage, bolstering economic prospects of tribal communities, and contributing towards the preservation and promotion of their unique artistic traditions.
- TRIFED highlighted the products and communities including: **Madurkathi Mats from Medinipur (West Bengal), Sabai Grass Yoga Mats from Mayurbhanj, (Odisha) and Gondha Grass mats from Jharkhand.**
- **Yoga from Arctic to Antarctica** is another feature, in which Ministry of external affairs (MEA) is coordinating with the Ministry of Ayush to organise yoga in countries falling in and around the Prime Meridian line besides UN member countries.
- **Yoga at the North Pole and South Pole** will be held in coordination with Ministry of earth science (MoES) at Himadri, the Indian research base in the Arctic and Bharati - the Indian research base in the Antarctica.
- **Yoga Bharatmala** has also been conceptualised. This involves Army troops along with ITBP, BSF, BRO making a Yoga chain. **Yoga Sagarmala** will feature yoga along the Indian coastline.

International Yoga Day

- ❖ It is celebrated on 21st June of every year since 2015.
- ❖ International Day of Yoga 2023 theme is "Yoga for Vasudhaiva Kutumbakam," which represents our collective desire for "One Earth, One Family, One Future."
- ❖ Indian Prime Minister proposed a dedicated yoga day during his speech at the 69th session of the United Nations General Assembly in 2014.
- ❖ On December 11, 2014, all 193 United Nations member states unanimously agreed to observe the International Day of Yoga on June 21, 2015.
- ❖ The primary goal is to raise awareness about yoga as a holistic practise for mental and physical well-being.
- ❖ This observance is significant in that it sheds light on the significance of psychological and physical wellness in today's world.



PEPPER IT WITH
United Nation, TRIFED

Mesolithic-era rock paintings

News Excerpt

Recently, A Mesolithic period rock painting depicting a person tilling a piece of land has been found in Orvakallu village in Guntur district, Andhra Pradesh.

Mesolithic period rock painting

About finding

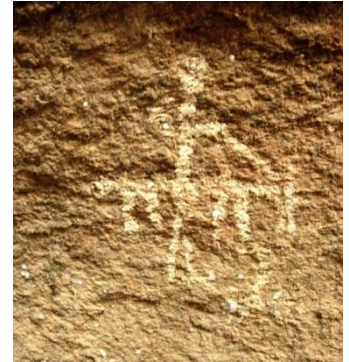
- It has been found by D. Kanna Babu, former Superintending Archaeologist of the Temple Survey Project (Southern Region) of the Archaeological Survey of India, Chennai.
- While surveying the lower River Krishna Valley to ascertain the architectural features of shrines, he identified a new prehistoric rock painting on the walls and ceiling of natural rock shelters on a hillock at Orvakallu.
- After an intensive exploration, it was noticed that these were shelters for prehistoric humans who lived at this place.
- Among these five naturally formed caves, two are embellished with distinguished depictions of rock paintings on the back walls and ceilings executed by people of Mesolithic Age, roughly [from] 5000 BC.

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CURRENT CONNECT- JUNE- 23

About painting

- The paintings were made with "natural white kaolin and red ochre pigments", as well as that most of them had been "badly damaged" due to exposure to "air and wind".
 - Ochre is a pigment composed of clay, sand, and ferric oxide. Kaolinite is a soft, earthy, and usually white mineral produced by the chemical weathering of aluminium silicate minerals like feldspar.
- One of the paintings depicted a man catching wild goat with his left hand while wielding a hook-like implement to control it. Another showed two couple standing with their hands raised while a child stood behind them.
- He singled out a painted figure of a man holding a plough and appearing to be tilling land -- an indication, in his telling, "of a semi-settled life pattern" in which members of this community domesticated animals and cultivated and harvested crops.
- Earlier, in 2018, archaeologists had uncovered prehistoric rock art estimated to be from the Neolithic era, circa 1500-2000 BC, on natural limestone formations near Dachepalli in Guntur district.



PEPPER IT WITH

Painting, Neolithic era, Mesolithic period rock painting

Rani Durgavati

News Excerpt

Madhya Pradesh government launched the six-day Rani Durgavati Gaurav Yatra and marked June 24 as a day of sacrifice, when the queen is believed to have died while fighting the Mughals in the mid-16th century.

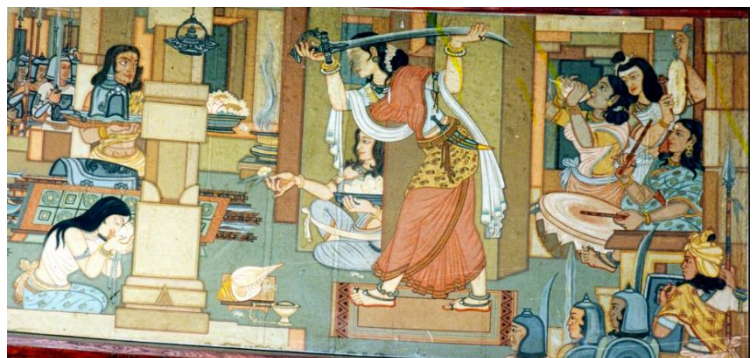
Background

- Rani Durgavati is said to have been born in 1524 in Mahoba's Chandela dynasty. The region comes under present-day Uttar Pradesh.
- Chandelas were known for building the famous Khajuraho temples.
- She married to Dalpat Shah, the son of the Gond King Sangram Shah of the kingdom of Garha-Katanga which is noted as one of the most powerful kingdoms of the Gond tribe.
- Durgavati was widowed in 1550 and her young son Bir Narayan presided over the throne and she ruled the country with great vigour and courage.

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The Mughal attack on Garha-Katanga

- The painting by Beohar Rammanohar Sinha shows Durgavati preparing for a battle with the Mughals in Narhi.
- The period of the mid-16th century witnessed early Mughal expansion in India under Akbar.
- During her reign, Durgavati fought with Baz Bahadur, the sultan of the neighbouring Malwa who was eventually defeated by Akbar, but the frequent battles continued even after the takeover.
- Mughals fortified the area and overwhelmed the Gonds. While fighting them in battle, she was struck by two arrows and it is believed she stabbed herself with her dagger to not surrender to the Mughal forces.



Significance

- Abul Fazl described Durgavati as a combination of beauty, grace and manlike courage and bravery.
- He adds that the prosperity of the kingdom was such that people paid their taxes in gold coins and elephants.
- In 2021, an award was instituted in the name of the Gond king Sangram Shah, the father-in-law of Queen Durgavati, of Rs 5 lakh for works in tribal art and culture.
- Another Gond queen, Rani Kamlapati, had Bhopal's Habibganj station renamed after her recently.

PEPPER IT WITH

Tribal integration in the mainstream economy, Empowerment of backward communities.



GI Tag to Uttar Pradesh

News Excerpt

The Geographical Indications tags are given to seven different products from Uttar Pradesh. A Geographical Indication is a label that is applied to products that have a specific geographical origin and that have characteristics related to a particular location.

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Product	Description
1. Amroha Dholak 	<ul style="list-style-type: none"> It is a musical instrument made of natural wood like Mango, jackfruit and teakwood. It is learnt that there are around 300 small units producing wood-based drum instruments (dholak), which provide employment to over 1,000 artisans.
2. Mahoba Gaura PattharHastashlip 	<ul style="list-style-type: none"> It is a stone craft which is a very unique and soft stone with scientific name, the 'Pyro Flight Stone'. Gaura stone craft is made of radiant white-coloured stone that is predominantly found in this region. It is cut into several pieces, which are then used for making various craft items.
3. Mainpuri Tarkashi' 	<ul style="list-style-type: none"> Tarkashi, a popular art form from Mainpuri in Uttar Pradesh. It is primarily brass wire inlay work on wood. It was mainly used for wooden sandals (khadaous), a necessity for every household, since leather was considered unclean.
4. Sambhal Horn Craft' 	<ul style="list-style-type: none"> In the Sambhal Horn Craft, the raw material is procured from dead animals. They are completely hand-made.
5. Baghpat Home Furnishings' 	<ul style="list-style-type: none"> Baghpat and Meerut are famous for their exclusive handloom home furnishing product and running fabrics in cotton yarn since generations. Only cotton yarn are used in the handloom weaving process. Baghpat is famous for weaving on the frame loom instead of the pit loom since generations.

<p>6. Barabanki Handloom Product'</p> 	<ul style="list-style-type: none"> There are around 50,000 weavers and 20,000 looms at Barabanki and adjoining area. The annual turnover of the Barabanki cluster is projected to be ₹150 crore.
<p>7. Kalpi Handmade Paper</p> 	<ul style="list-style-type: none"> Kalpi has historically been a centre of handmade paper manufacturing. The handmade paper-making cluster at Kalpi is a huge cluster, engaging more than 5,000 craftsmen and approximately 200 units

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CONTEMPORARY ETHICS CASE STUDIES

1. You are a senior civil servant in charge of infrastructure development within a government department, you have been presented with a proposal from a reputable construction company. The proposal involves the construction of a significant highway that would enhance connectivity in a remote region. However, reliable sources have informed you of the company's involvement in corrupt activities, including bribery to secure contracts from government officials. Additionally, there are apprehensions regarding the potential ecological ramifications of the proposed highway, as it is planned to pass through environmentally sensitive areas. This situation has placed you, as a public servant, in an ethical predicament where you must decide whether to support or oppose the project.
 - (a) Discuss the ethical issues involved in this case and outline the possible courses of action you could take.
 - (b) Evaluate each course of action in terms of its ethical implications and the impact on public administration.

2. You are a senior IAS officer who has been chosen for election duty based on your expertise and trustworthiness. Your crucial responsibilities include ensuring a transparent and equitable electoral process by supervising polling station operations, maintaining voting machines, and monitoring the behaviour of election officials. During the course of the election, you witness a disconcerting situation involving a fellow election official who also happens to be your close friend. This official is observed engaging in misconduct that manipulates the voting process. Their actions involve showing favouritism towards a specific political party, permitting multiple unauthorized votes, and intentionally suppressing votes from specific demographics. You are fully aware that these actions undermine the integrity of the election and contravene the fundamental principles of fairness and impartiality.
How do you balance your duty to the election process with potential personal consequences?

3. One day you were going through the newspaper and found following news:
 1. A University student, Ramesh jumped to his death a few days after his roommate used a webcam to observe and tweet about Ramesh's personal life.
 2. Idalia, a middle school teacher, was a victim of cyber harassment. After discovering that one of her students published abusive tweets, Idalia confronted the girl during a lesson on social media etiquette. Inquiring why the girl would post such hurtful messages that could harm the teacher's reputation, the student meekly replied that she was upset at the time. The teacher responded that she was very upset by the student's actions. Demanding a public apology in front of the class, Idalia stated that she would not allow "young brats" to abuse her. Idalia, uploaded a video of this confrontation online, attracting much public attention.

(a) What are the ethical issues involved in the above situations?



SCAN THIS QR TO
GET ANSWER

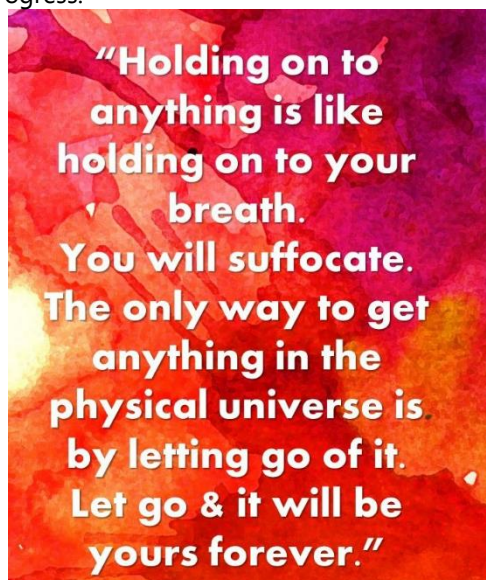
PHILOSOPHY OF THE MONTH

Beauty is what strikes your soul, not senses

- Beauty is not solely determined by physical features but is the result of the joint force of various elements.
- Beauty is subjective and often perceived as a fragmented aspect rather than in its totality.
- True beauty goes beyond sensory appeal and strikes the soul.
- Inner goodness and character are more important than mere looks.
- A person's character is reflected in their appearance and manifests as the ultimate good.
- An anecdote about a little girl who found Abraham Lincoln beautiful because of his gentle and humorous nature.
- A painting without a face challenges individuals to impose their own idea of beauty and shows the abstract nature of beauty.
- Beauty should not be limited to stereotypical and fixed standards but should have an abstract and indefinable quality.
- Beauty, like love, is an open-ended concept that can only be felt and experienced.
- True appreciation of beauty requires engaging all senses and embracing its various facets and dimensions.

For intelligent living, Let go of attachments

- The Bhagwad Gita advises renouncing attachment as it hinders spiritual progress.
- Attachments can be to material things and human beings, leading to dependence, possessiveness, jealousy, and fear.
- Attachment to material possessions boosts ego and false notions of happiness.
- Attachment to human beings becomes problematic when it is one-sided.
- Giving up attachment to one's own children is not necessary, but it is important to avoid excessive worry and dependence.
- Love others without becoming attached and dependent; give them space to grow and nurture their talents.
- Clinging attachment creates bondage for both parties involved.
- Engaging in satsang (association with spiritually eminent people) helps develop detachment and clarity.
- Turning the mind towards the Divine brings true joy, peace, and fulfillment, while attachments lead to sorrow and bondage.



PT CONCATENATION

First Janjatiya Khel Mahotsav

About

Recently, the first Janjatiya Khel Mahotsav was concluded with Odisha emerging as the overall champions in both the men's and women's categories.

Janjatiya Khel Mahotsav

- The grand sporting event was jointly hosted by the Ministry of Culture and the Odisha Government in collaboration with KIIT University.
- The first edition attracted the participation of 5,000 tribal athletes and 1,000 officials from 26 states.
- In the event, Karnataka emerged as the 1st runners-up and Jharkhand as the 2nd runners-up overall.

Significance

- The Tribal Sports Championship provides a platform to showcase and preserve the traditional sports, which are an integral part of tribal heritage and identity.
- It fosters a sense of unity and belonging among tribal communities and brings people together, promoting social integration and cooperation.
- It can attract tourists and visitors interested in experiencing the rich cultural heritage of tribal communities and generate economic opportunities in tribal regions.

LINK IT WITH: Assimilation of Tribals, Significant tribal sports personalities

Kharchi Puja 2023

About

Kharchi Puja, also called the 'Festival of 14 Gods', is observed on the eighth day of the new moon in July or August every year in the Northeastern state of Tripura.

Mythology of Kharchi Puja

- The festival is centred around the worship of Chaturdasa Devata, the ancestral deity of the Tripuri people.
- The word 'Kharchi' is derived from two Tripuri words 'khar' or kharta meaning sin and 'chi' or si meaning cleaning.
- It is believed that the Mother Goddess or Tripura Sundari, the presiding deity of the land who protects the people of Tripura, menstruates during the time of Ambubachi, which is observed in June.
- There is a popular belief that the Earth becomes impure during the menstruation period of the Goddess.
- Hence, Kharchi Puja is observed to ritualistically clean the Earth after her menstruation is over and wash away the sins of the people in the land.

LINK IT WITH: Tribal Festivals, Kola Ritual (Kantara)

VAIBHAV Fellowship Programme

About:

The Government has launched a new fellowship programme to connect the Indian STEMM diaspora with Indian academic and R&D institutions for collaborative research work leading to sharing of knowledge, wisdom, and best practices in the frontier areas of science & technology.

Vaibhav Fellowship programme

Vaibhav Fellowship programme

The VAIBHAV Fellowship aims at improving the research ecosystem of India's Higher Educational and Scientific Institutions by facilitating academic and research collaborations between Indian Institutions and the best institutions in the world through mobility of faculty/researcher from overseas institutions to India.

The Vaishvik Bhartiya Vaigyanik (VAIBHAV) fellowships programme to be implemented by the Department of Science and Technology (DST), Ministry of Science and Technology, would be awarded to outstanding scientist/technologists of Indian origin (NRI/OCI/PIO) who are engaged in research activities in their respective countries.

The VAIBHAV Fellow would identify an Indian Institution for collaboration and may spend up to two months in a year for a maximum of 3 years.

Fellowship would include fellowship grant (INR 4,00,000 per month), international and domestic travel, accommodation and contingencies.

The VAIBHAV fellows are expected to collaborate with their Indian counterparts and help initiate research activities in the host institution in the cutting-edge areas of Science and Technology.

The 75 selected fellows would be invited to work in 18 identified knowledge verticals including quantum technology, health, pharma, electronics, agriculture, energy, computer sciences, and material sciences amongst others.

- The fellowship programme launched as a step to further those efforts by shaping and implementing the VAIBHAV programme, envisages collaboration between scientists of Indian Diaspora with Indian Higher Educational Institutions (HEIs), Universities, and/ or public funded Scientific Institutions.

The Commission of Railway Safety (CRS)

Context

Investigation into the recent tragic train accident in Odisha is being conducted by the Commissioner of Railway Safety.

About

- Rail safety commissioners are part of the Commission of Railway Safety (CRS), a government body that acts as the railway safety authority in the country.
 - CRS is a statutory body established under the Railways Act, 1989.
 - It has jurisdiction over safety aspects of railway travel and operations.
 - The CRS conducts inspections, investigations, and provides advisory services to ensure the adherence to safety standards in the railway sector.
- The Government of India Act, 1935 stated that functions for securing the safety of railway operations, both for the travelling public and personnel operating the railways, should be performed by an authority independent of the federal railway authority or the Railway Board.
 - These functions included conducting railway accident probes.
 - However, these provisions were not materialized.

LINK IT WITH: Railway Board, CRIS, Kavaach

Foucault pendulum

Context

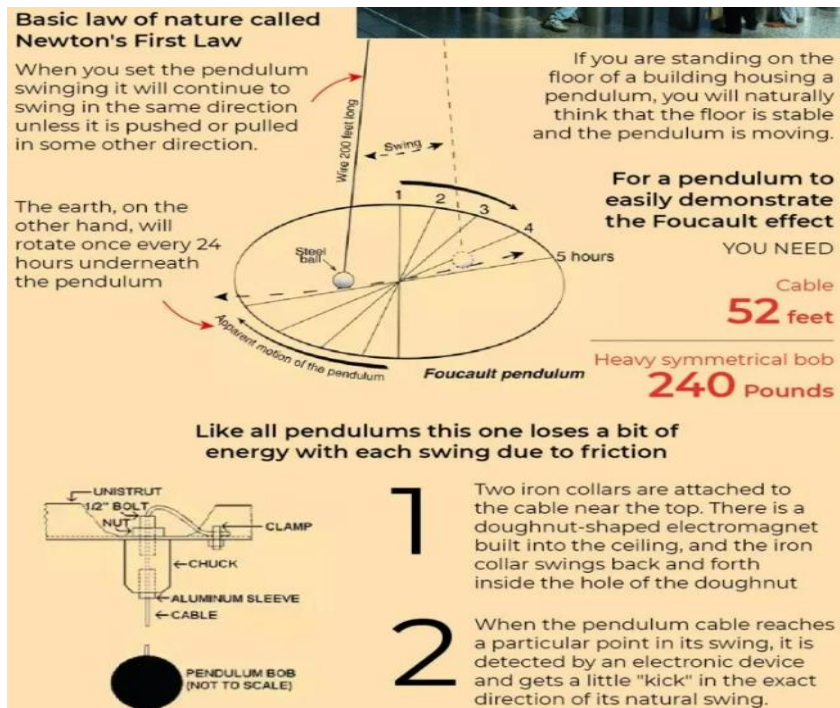
Foucault pendulum featured in Parliament's Constitutional Gallery area.

About

- The Foucault pendulum is a simple and elegant scientific device used to demonstrate the rotation of the Earth.

The pendulum, created by the National Council of Science Museum (NCSM) in Kolkata, is the tallest of its kind in India, standing 22 metres tall and weighing 36 kilograms.

- It consists of a long, heavy pendulum suspended from a fixed point, which is free to swing back and forth in any direction.
- As the pendulum swings, it appears to change its direction of swing due to the rotation of the Earth beneath it.
- The concept behind the Foucault pendulum is based on the principle of conservation of angular momentum.
- As the Earth rotates, the plane of oscillation of the pendulum remains fixed in space while the Earth moves beneath it.
- This causes the apparent change in direction of the pendulum's swing, creating a slow rotation over time.
- By observing the pendulum's movement, one can determine the rotation rate and direction of the Earth.



Global Slavery Index 2023

Context

Walk Free Foundation released 'the Global Slavery Index 2023' citing the increasing prevalence of modern slavery worldwide.

About

- As per the report, India, China, Russia, Indonesia, Turkey, and the U.S. are among the top G20 countries with the highest number of forced labourers.
- According to the Global Slavery Index 2023, approximately 50 million individuals were estimated to be living in modern slavery in 2021, marking an increase of 10 million people since 2016.
- The Asia and Pacific regions are home to the majority of individuals living in modern slavery, with India having a prevalence of the estimated percentage of the population living in modern slavery per 1000 people.
- This indicates that approximately one in every 160 people worldwide is a victim of modern slavery. The index ranks 160 countries based on their estimated prevalence of modern slavery per 1,000 individuals.
- Notably, countries such as North Korea (104.6), Eritrea (90.3), and Mauritania (32.0) have the highest prevalence, where modern slavery is pervasive and often supported by the state. Conversely, countries like Switzerland (0.5), Norway (0.5), and Germany (0.6) exhibit the lowest prevalence, reflecting robust governance and effective responses to combat modern slavery.
- Modern slavery refers to various forms of exploitation that involve the severe deprivation of individuals' freedom, control, and dignity. It encompasses practices such as forced labor, human trafficking, debt bondage, child labor, and forced marriage.

Direct-Seeding Method

Context

The Punjab government is bringing about 5 lakh acres of paddy sowing in the state under Direct Seeding of Rice (DSR) this season.

About

- Direct-seeding method gains currency in India's paddy growing regions.
- There are three methods of planting crops by direct seeding: broadcast, hill, and drill.
- Direct seeding is a crop establishment system wherein rice seeds are sown directly into the field, as opposed to the traditional method of growing seedlings in a nursery, then transplanting into flooded fields.
- It involves sowing pre-germinated seeds directly into the soil using specialized equipment.

CURRENT CONNECT- JUNE- 23

- This Method offers several advantages, including reduced labor requirements, cost savings, and improved water and nutrient management.
- By eliminating the need for manual transplanting, farmers can save time and labor expenses. It also reduces the risk of transplant shock and improves crop establishment.
- This method is beneficial for crops like rice and wheat, which are commonly cultivated in India.
- It helps in water conservation as it reduces the amount of water needed for transplanting. Additionally, it allows for better fertilizer management as the nutrients can be directly applied to the sown area

Advantages of direct seeding

No significant reduction of yield under optimal conditions, Savings on irrigation water by 12-35% under efficient water management practices, reduces labor and drudgery by eliminating seedling uprooting and transplanting, Reduces cultivation time, energy, Faster maturation of crops, Lower GHG emissions etc.

NITI Aayog's Annual Health Index 2020-21

Context

NITI Aayog's annual 'health index' for the Covid year of 2020-21 was released.

Key Points

- The health Index is based on weighted composite score incorporating 24 health performance indicators.
- The health index assesses states and UTs on two parameters – incremental performance (year-on-year progress) and overall performance.
- The states and UTs — categorised separately as 'larger states', 'smaller states' and UTs — are then ranked based on their scores.
- The three southern states of Kerala, Tamil Nadu and Telangana emerged as the top performers among the 'larger states'.
- In terms of overall performance. Bihar (19th), Uttar Pradesh (18th) and Madhya Pradesh (17th) are at the bottom of the list.
- In terms of incremental performance, Rajasthan, Uttarakhand and Odisha emerged as the top three performers in 2020-21, as compared to their performance in 2019-20.
- Among the eight smaller states, Tripura has recorded the best overall performance, followed by Sikkim and Goa; Arunachal Pradesh (6th), Nagaland (7th) and Manipur (8th) are at the bottom. And among the eight UTs, Lakshadweep has been ranked as the top performer in terms of overall performance, while Delhi ranked at the bottom.

44th Edition of The ISO COPOLCO Plenary

Context

India is hosting the 44th edition of the coveted annual ISO COPOLCO Plenary in New Delhi.

About

- ISO COPOLCO, or the Committee on Consumer Policy, is a committee of the International Organization for Standardization (ISO) responsible for promoting consumer interests in the standardization process and for ensuring that standards are developed with the needs of consumers in mind.
- The committee engages with consumer organizations, government bodies, and other stakeholders to address a wide range of consumer-related topics. This includes areas such as product safety, labeling and packaging, sustainability, e-commerce, dispute resolution, and consumer education.
- It plays a vital role in ensuring that consumer perspectives are considered and integrated into the global standardization process.

Axolotl

Context

The axolotl is a species of salamander (lizard-like amphibians) originally found in Lake Xochimilco, near Mexico City.

About

- Axolotl is now almost extinct in the wild.
- Researchers investigate the remarkable regenerative abilities of axolotls, examining their capacity to regrow limbs, gills, tails, eyes, and even parts of the head.

- This research aims to uncover insights into the mechanisms behind axolotl regeneration, with the ultimate goal of applying this knowledge to enhance our own potential for regenerative capabilities.
- Axolotls, like humans, contain two copies of every gene – one inherited from the father and the other from the mother.
- The cell created as a result of an axolotl sperm fertilising an axolotl egg is called a zygote. The zygotes develop into larvae, which go on to become adults.

Radiometric dating

Context

A new study shows a way to use calcium-41 the same way carbon-14 has been used in carbon-dating.

About

- Carbon dating has revolutionised many fields of science by allowing scientists to estimate the age of an organic material based on how much carbon-14 it contains.
- However, carbon-14 has a half-life of 5,700 years, so the technique can't determine the age of objects older than around 50,000 years.
- Scientists suggested to use calcium-41, with a half-life of 99,400 years.
- Calcium-41 is a stable isotope, meaning it is non-radioactive and does not pose any health risks during its use in research or measurements.
- Calcium-41 can be used in conjunction with other isotopic systems, such as carbon-14 and stable carbon isotopes (e.g., carbon-12, carbon-13), to provide a more comprehensive understanding of carbon cycling and processes.

Radiometric dating

- It is a method used to determine the age of rocks and other geological materials by analyzing the relative abundance of certain isotopes within them.
- It relies on the fact that certain isotopes of elements are unstable and decay over time into more stable forms at a predictable rate called a half-life. The process involves measuring the ratio of parent isotopes (unstable isotopes) to daughter isotopes (the isotopes formed by the decay process) in a sample.

Dag Hammarskjold Medal

Context

Three Indian U.N. peacekeepers will be honoured posthumously with the Dag Hammarskjold Medal.

About

- Personnel from BSF Head Constables Shishupal Singh and Samwali Ram Vishnoi, who served with the Organisation Stabilisation Mission in the Democratic Republic of the Congo and Shaber Taher Ali, who was employed in a civilian capacity with the U.N. Assistance Mission for Iraq will be honored.
- Shishupal Singh and Sanwala Ram Vishnoi deployed as part of a United Nations mission at Butembo, Congo, and laid their life during an anti-U.N. protest in the Eastern city of Goma near the strife-torn country's border with Uganda.
- This medal is the highest honour awarded to U.N. Peacekeepers who have distinguished themselves by exceptional courage, devotion to duty, and sacrifice in the cause of peace.
- The U.N. Secretary-General will preside over a Dag Hammarskjold Medal and Military Gender Advocate of the Year award ceremony in the General Assembly Hall.

Knowledge Sharing Platform for Highway Development

Context

NHAI Launches 'Knowledge Sharing Platform' for Inclusive Development of National Highways.

About

- This initiative will help to collaborate with experts and citizens who want to share knowledge and insights related to topics such as road design, construction, road safety, environment sustainability and related fields.
- The platform will encourage sharing of best practices from around the world and will contribute towards holistic development of the National Highway infrastructure in the country.

One Nation One Helpline' Initiative**Context**

The Ministry of Women and Child Development (MoW&CD) has taken a momentous step towards enhancing child helpline services.

About

- This move aims to improve the effectiveness and efficiency of child helpline services by integrating them with other emergency services like the police, fire, and ambulance departments.
- Initially, this merger will be implemented in nine states and Union Territories, including Andhra Pradesh, Arunachal Pradesh, Bihar, Gujarat, Goa, Mizoram, Ladakh, Puducherry, and Dadra and Nagar Haveli and Daman and Diu, with other regions to follow in a phased manner.
- The Childline India Foundation (CIF) and its partner NGOs were responsible for operating the 24x7 helpline under the Child Protection Services scheme.
- However, the existing system faced challenges in interoperability with other emergency services, resulting in delays during distress situations. Furthermore, ChildLine services were available in only 568 districts, leaving approximately 200 districts without coverage.
- In the past, distress emergency calls involving children/juveniles used to be dialled to the helpline number 1098.
- From there, calls would be forwarded to the Childline India Foundation (CIF), an umbrella organisation for more than 100 NGOs. These NGOs would take on cases involving children and then forward them to the police after they had a better understanding of the circumstances.
- To address these issues and improve the Childline 1098 service, the Ministry has appointed the Centre for Development of Advanced Computing (C-DAC) in Kerala as the "total solution provider." The goal is to automate and integrate the Childline 1098 service with ERSS 112. This integration will allow incoming 1098 calls to be classified into emergency, non-emergency, and information categories.
- Overall, the integration of Childline services with the ERSS number 112 is a significant step towards streamlining emergency response systems and ensuring better coordination in addressing distress situations involving children.

Summer Solstice**Context**

The longest day of 2021 for north hemisphere is on June 21. This day is referred as the 'summer solstice', the longest (duration) day in summer season.

About Summer Solstice

- It occurs when the sun is directly over the Tropic of Cancer, or more specifically right over 23.5 degree north latitude.
- During the solstice, the Earth's axis around which the planet spins, complete one turn each day. It is tilted in a way that the North Pole is tipped towards the sun and the South Pole is away from it.
- Typically, this imaginary axis passes right through the middle of the Earth from top to bottom and is always tilted at 23.5 degree with respect to the sun. Therefore, the solstice is that instant in time when the North Pole points more directly toward the sun than at any other time during the year.
- Summer solstice does not mean the earliest sunrise or latest sunset. Solstice means "sun standing still".
- The sun appears to linger at its highest point in the sky for the year at midday on the summer solstice.
- This day is characterised by a greater amount of energy received from the sun.
- According to NASA, the amount of incoming energy the Earth received from the sun on this day is 30 per cent higher at the North Pole than at the Equator.
- When the Northern Hemisphere is tilted toward the sun, sunlight falls at a steeper angle on it to cause the hot months of summer.
- Summer solstice is very closely linked to the seasons, and seasons are directly linked to human behavior and activity and resources. In India, intense heating invites monsoon during summer solstice which have direct impact on agriculture and economy.
- Summer Solstice also changes the duration of Day and Night in respective hemisphere. The further north one moves from the equator, the more light one receives during the summer solstice. At the Arctic Circle, the sun never sets during the solstice.

Mangroves' Genomic

About

- Scientists have achieved a breakthrough by sequencing the entire genome of *Avicennia marina*, a highly salt-tolerant and salt-secreting true-mangrove species.
- *Avicennia marina* is a prominent mangrove species in India, thriving in all mangrove formations.
- It exhibits exceptional salt tolerance, secreting 40% of salt through specialized glands in its leaves and preventing salt entry into the roots.
- This genomic data will enable researchers to explore the potential of identified genes in developing drought and salinity tolerant varieties of important coastal crops in India, which is home to vast coastlines and island systems.
- Mangroves, unique species inhabiting estuarine regions, possess adaptive mechanisms to survive high salinity, providing ecological, economic, and protective benefits by connecting marine and terrestrial ecosystems and serving as habitats for diverse organisms.

Spotted Pond turtles

About:

Recently, three persons engaged as mahouts in the Kaziranga National Park and Tiger Reserve have been arrested for capturing and consuming a rare species of a freshwater turtle inside the one-horned rhino habitat.

Spotted pond turtle

- **Scientific name:** *Geoclemys hamiltonii*.
- **Size:** They can grow up to about 40.5 centimeters (16 inches).
- Spotted pond turtles are named for the yellow or white spots on their black heads, legs and tails.
- They have large heads and short snouts, and their webbed feet help them swim.
- The pond turtle's carapace, or upper shell, is generally black with bright patterns that fade with age.
- Males have concave carapaces and larger, thicker tails than females.
- **Native Habitat:**
 - Spotted pond turtles are found in the northern region of the Indian subcontinent in the Indus and Ganges River drainages.
 - Their range includes parts of Pakistan, northern India, Bangladesh, and Nepal. They are semi-aquatic and can typically be found in shallow, standing waters, such as oxbow lakes, ponds and marshes.
- **Lifespan:** Spotted Pond turtles typically live 15-20 years in zoos.
- **IUCN status: Endangered**
 - **Conservation Actions:** Listed on CITES Appendix I.
 - **Physical description:** it is a medium-sized freshwater turtle having a black shell with yellow streaks.

Cyclone Biparjoy

About:

Recently, A cyclonic storm, named Biparjoy, has developed in the Arabian Sea.

Cyclone Biparjoy

- Name '**Biparjoy**' was suggested by **Bangladesh** and the word means 'disaster' or 'calamity' in Bengali.
- The naming of cyclones is done by countries on a rotational basis, following certain existing guidelines.
- Worldwide, there are **six regional specialised meteorological centres (RSMCs)** and **five regional Tropical Cyclone Warning Centres (TCWCs)** mandated for issuing advisories and naming of tropical cyclones.

CYCLONE

- ❖ A cyclone is a low-pressure system that forms over warm waters. Usually, a high temperature anywhere means the existence of low-pressure air, and a low temperature means high-pressure wind.
 - In fact, that is one of the main reasons why we see greater number of cyclones in the Bay of Bengal compared to Arabian Sea.
- ❖ Bay of Bengal is slightly warmer. Because of climate change, the Arabian Sea side is also getting warmer, and as a result, the number of cyclones in the Arabian Sea is showing an increasing trend in the recent trend.

- IMD is one of the six RSMCs to provide tropical cyclone and storm surge advisories to 13 member countries under the WMO/Economic and Social Commission for Asia-Pacific (ESCAP) Panel including Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates and Yemen.
- The WMO/ESCAP Panel on Tropical Cyclones in 2000 agreed in principle to assign names to the tropical cyclones in these seas. After deliberations, **the naming began in September 2004.**
- This list contained names proposed by then eight member countries of WMO/ESCAP PTC, viz., Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand. It was expanded to include five more countries in 2018 — Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.
- The list of 169 cyclone names released by IMD in 2020 was provided by these countries — 13 suggestions from each of the 13 countries.

LINK IT WITH: Tropical cyclone, IMD

X-ray of an atom

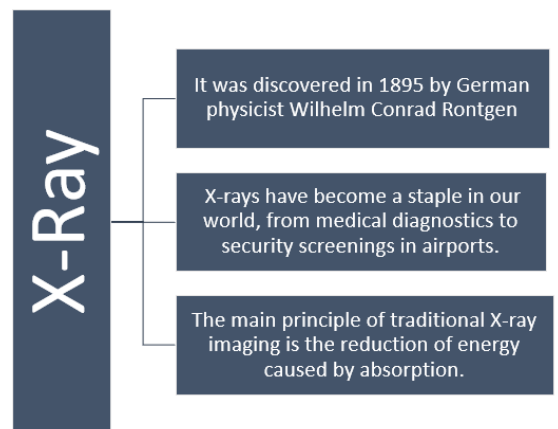
About:

Recently, Scientists have for the first time identified an element by X-raying a single atom.

X-ray of an atom

- The team of Ohio University, used a synchrotron X-ray instrument developed specifically for the experiment. As samples, they used a single atom of iron and terbium, a rare earth metal, each.
- The scientists modified a conventional X-ray detector to add a sharp metal tip that would be moved to be extremely close to a sample. This is to improve the detector's ability to record any signals from the atom.
- They used a method called **synchrotron X-ray scanning** tunnelling microscopy or SX-STM. The atom was hit with X-ray photons.
 - As expected, the electrons in the atom absorbed only photons of certain frequencies. Photons of the other frequencies passed through.
 - Using a spectroscope, the team determined which frequencies had been absorbed.
- This absorption spectrum is unique to each element and can be used to identify it.
- Second, when electrons absorb the X-ray photons, they become excited and tunnel their way to the metal tip of the detector. There, a small voltage allows the electron to create an electric current, which is recorded and measured. In one version of the experiment, the scientists placed the metal tip as close as 0.5 nanometres from the atom.
- Being able to identify a material using only one atom could, according to the group, revolutionise research in material science, quantum mechanics, and other areas.
- The study also characterised the chemical states of the atoms. They found that as a rare earth metal, the terbium atom maintains its chemical state and is isolated while the iron atom interacts heavily with its surroundings.
- This is useful because rare earth metals find widespread application in electronic devices, and understanding their properties better could help researchers manipulate their atoms to greater precision.

LINK IT WITH: X-rays, SX-STM



NHAI's 'Sustainability Report'

About:

The report, released by Union Minister for Road Transport and Highway. It covers NHAI's governance structure, stakeholders, environment and social responsibility initiatives.

Key points of the report

- The Sustainability Report underlines the effectiveness of various efforts made by NHAI for environment and energy conservation. From FY 2019-20 till 2021-22 direct emission reduced by 18.44% and 9.49% due to less fuel consumption.
- Green House Gas (GHG) Emissions from energy consumption, operations, transport and travel measured in Metric Tonnes CO2 equivalent /km constructed saw a decline of 9.7% in FY 2020-21 and 2% in FY 2021-22.

- Similarly in operations, energy intensity in Giga Joules/km reduced by 37% in FY 2020-21 and 27% in FY 2021-22, while the kilometres constructed through the reporting period has risen steadily. With over 97 percent penetration, Electronic Toll Collection through FASTag has contributed to reduce the carbon footprint.
- NHAI has been using recycled materials for National Highway construction. Use of fly-ash and plastic waste in construction has increased over the last three years. NHAI has been encouraging use of Recycled Asphalt (RAP) and Recycled Aggregates (RA) in the National Highway construction.
- In order to ensure sustainable environmental growth, more than 100 Wildlife Crossings were created in three years across 20 States as a measure for wildlife protection and conservation to reduce man-animal conflict.
- Over the years, NHAI has been undertaking plantation drives to develop eco-friendly National Highways. Around 2.74 crore saplings were planted till 2021-22 to offset direct emissions from the vehicles.
- In addition to sustainable development, the report also highlights NHAI's commitment to create inclusive and responsible work practices. Over last three years, women employment and employment of marginalized communities at NHAI has increased. With performance-based management system, NHAI has successfully promoted/encouraged women gender diversity and minority employees over the past 3 years with steady increase in female hiring by 7.4 percent and total increase of 3 percent in overall work force in three financial years.



LINK IT WITH: NHAI. Sustainable development, FASTag, Sustainability report

Limit on UPI transactions

About:

As transactions facilitated by the Unified Payments Interface (UPI) breach record highs, banks have opted for daily limits.

Reason of limitation

- The limits are set balancing out customer convenience and potential fraud/risk concerns.
- Until February in the financial year 2022-23, the total number of reported **UPI frauds had also increased about 13%** in comparison to the previous financial year to 95,402. However, this was alongside a decline in the fraud to sales ratio at 0.0015%.

NPCI steps to combat fraud

- At present, users can make up to **20 transactions or ₹1 lakh in a single day**.
- For certain specific categories of transactions such as the capital markets, collections (such as bills, among others), insurance and forward inward remittances, the limit is ₹2 lakh.
 - In December 2021, the limit for the UPI-based ASBA (Application Supported by Blocked Amount) IPO and retail direct schemes was increased to ₹5 lakh for each transaction.
- The conversation now revolves around banks and apps coming up with their own guidelines for transactions.
- As the payments interface looks to expand its footprint and its growing utility in daily lives, limits would help maintain an essential security infrastructure and its seamless functioning.

LINK IT WITH: NPCI, UPI, RBI, NEFT, RTGS

Unified Payments Interface (UPI)

It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience. It started in 2016 in India.

National Training Conclave

About:

Recently, the first-ever National Training Conclave inaugurated by the prime minister of India at the International Exhibition and Convention Centre, Pragati Maidan, New Delhi.

National Training conclave

- The event was hosted by the Capacity Building Commission (CBC) and is sponsored by the National Programme for Civil Services Capacity Building (NPCSCB) - 'Mission Karmayogi, with an objective to foster collaboration among civil services training institutes and strengthen the training infrastructure for civil servants across the country.
- The conclave helped CSTIs together identify strategies to build and enhance the capabilities and capacities of

training institutions.

- It provided a platform for networking, knowledge exchange, identifying challenges, and areas of collaboration, bringing together all stakeholders of the Civil Service Training Ecosystem that is 1000+ Central and State Civil Services Training Institutions, Senior Government officials & knowledge partners.
- The Conclave witnessed participation from all over the country, with 1500+ participants which included representatives from CSTIs across the nation, representatives from MDOs, policy makers, private

iGOTKarmayogi Platform

- The iGOTKarmayogi Platform is a comprehensive online portal to guide government officials in their capacity building journey.
- The portal combines 6 functional hubs for online learning, competency management, career management, discussions, events and networking.

Mission Karmayogi

- In September 2020, Government of India has launched Mission Karmayogi a National Programme for Civil Services Capacity Building (NPCSCP).
- The programme aims at building a future-ready civil service with the right attitude, skills and knowledge, aligned to the vision of New India.



THE 8 BREAKOUT SESSIONS

At the breakout sessions, panel discussions at the National Training Conclave were held on the following 8 topics:



sector experts, as well as representatives from academia.

LINK IT WITH: iGOTKarmayogi Platform, mission karmayogi, national training conclave

Hydrogen from seawater

About:

Recently, Researchers from the Department of Physics at IIT-Madras have developed critical components for a highly efficient, cost-effective way to electrolyze seawater to generate hydrogen.

Important facts

- State-of-the-art alkaline water electrolyser technology is energy-intensive, requires an expensive oxide-polymer separator, and uses fresh water for electrolysis.
- In place of pure or fresh water, researchers have developed an electrolyser using alkaline seawater.
- They used a carbon-based support material for the electrodes instead of metals to almost eliminate the possibility of corrosion.
- They designed and developed transition metal-based catalysts that can catalyse both oxygen and hydrogen evolution reactions.

- The catalyst enhances the production of both hydrogen and oxygen even when impurities and chemical deposition on one of the electrodes takes place.
- The researchers have developed a cellulose-based separator that is very economical and serves the purpose of allowing hydroxide ions to pass through but prevents oxygen and hydrogen that are generated from crossing-over.
- The researchers have optimised all the parameters such that the water electrolyser can directly use photovoltaic-derived voltage to split seawater and generate green hydrogen and oxygen, oxygen can be used elsewhere.

LINK IT WITH: Green hydrogen, Alkaline water electrolyser technology

Dimethyl Ether fuel Engine

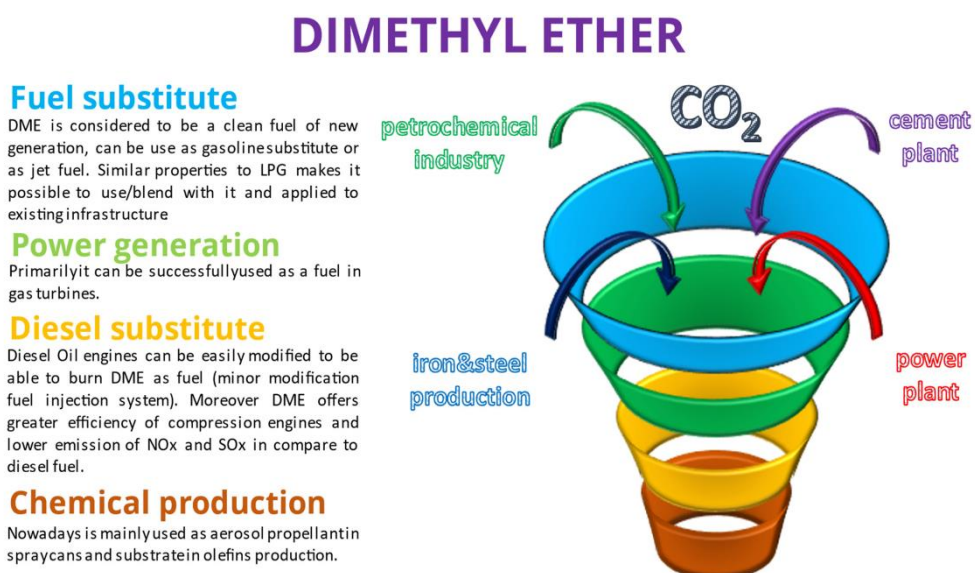
About:

Recently, India's first 100% Dimethyl Ether (DME) -fuelled tractor/ vehicle for on- and off-road applications has been developed, initiating a new chapter in the crusade for a sustainable alternate fuel-based transport system.

Dimethyl Ether fuel Engine

- Dimethyl ether (DME) is a suitable alternative since it is renewable. It can be produced indigenously, and several countries, like Japan, USA, China, etc are already using DME to power their vehicles.
- To bring the country up to speed in renewable energy sector, researchers at IIT Kanpur developed a 100% DME-fuelled engine with a mechanical fuel injection system. It exhibited higher thermal efficiency and lower emissions than the baseline diesel engine.
- The DME-fuelled engine emitted extremely low particulate and soot emissions and almost no smoke.
- The research supported by the Science and Engineering Research Board (SERB) was dove-tailed into the 'Methanol Economy' program of NITI Aayog and could convert vast domestic coal reserves, low-value agricultural biomass waste, and municipal solid waste into methanol and DME for variety of applications including powering the tractors/ vehicles.

LINK IT WITH: Dimethyl ether, dimethyl ether engine, renewable energy



Coronal Mass Ejections

About

Recently, a new and large sunspot is emerging on the southeastern part of the star and two solar storms are headed towards the Earth. According to NASA The Earth is set to get a "double punch" of solar storms soon and this could supercharge auroras in the regions where they are visible.

About Coronal Mass Ejections

- Coronal Mass Ejections (CMEs) are large-scale eruptions of charged particles (plasma) and magnetic fields from the solar atmosphere into space. They can disrupt a range of ground- and space-based technologies and satellites on Earth.
- When CMEs propagate, several processes can exchange energy (electrical, kinetic, potential, thermal, and so on.), thereby heating or cooling the plasma.
- The corona is structured by strong magnetic fields. Sometimes, these fields are closed, often above sunspots. The confined solar atmosphere can suddenly and violently release bubbles of gas and magnetic fields, or CMEs.
- CMEs can sometimes contain billions of tons of matter that can be accelerated to speeds of millions of miles per hour. These streams of solar material cut through the space in between planets and impact any planet or spacecraft in its path.

- It could cause some weak power grid fluctuations and have a minor impact on satellite operations. Migratory animals could be affected by the storm as well.

LINK IT WITH: Coronal mass ejections. Solar flare, solar system

SAI20 Summit

About:

The SAI20 Summit of the SAI20 Engagement Group under India's G20 Presidency held in Goa.


SAI20 Summit

- The SAI20 Summit meeting was focused on the deliberations and adoption of the final draft of the SAI20 Communique. The final SAI20 Communique, an inclusive, decisive, and action-oriented document, was adopted upon consensus by SAI20 member SAIs in the SAI20 summit.
- CAG highlighted that the Supreme Audit Institutions have a crucial role to play in the audit of Blue Economy and Responsible AI to ensure good governance, transparency and accountability and to optimise their positive impact on humankind.

LINK IT WITH: G20, G20 summit, SAI20


SAI20

The SAI20 Engagement Group of G20 was established during 2022 during Indonesia's Presidency of the G20.



Objectives of SAI20

- ✓ Promote collaboration among SAIs in G20 countries and other stakeholders to contribute in strengthening oversight, developing insight, and providing strategic foresight to foster accountable economic governance, while also recognise the different maturity levels and mandates of each respective SAI of member countries, and ensuring the unity and integrity of the SAI community.
- ✓ Develop a platform for strengthening the SAIs' role as a partner to G20 member countries in responding to global issues.





Principles of SAI20

- ✓ **Independence :**
Independence should remain an overarching goal of all SAI20 members, as stipulated in the Mexico Declaration on SAI Independence.
- ✓ **Transparency :**
SAI20 will ensure timely, reliable, clear and relevant reporting on its status, activities, operations and performance.
- ✓ **Accountability :**
SAI20 will be committed to be held accountable to playing a key role in making difference to the lives of the citizens.
- ✓ **Collaboration :**
To address the cross-cutting issues, SAI20 will aim to cooperate and collaborate with other groups and tracks under the G20.
- ✓ **Continuity :**
SAI20 will ensure that its operations are managed to aim for continuity. Therefore, SAI20 may consider a diversity of topics and priority-settings in such a way that could provide a longer-term perspective and promote longterm planning, thereby upholding its continuity. It is important that all SAI20 activities seek to build on their predecessor activities and that these be developed further so that continuity can be served.
- ✓ **Inclusiveness**
SAI20 will be open for stakeholders' collaboration to promote participatory engagement for delivering meaningful outputs.

Class D Biomedical Device

About:

Recently, Indian Drugs Controller approved the first indigenously developed animal-derived tissue engineering scaffold for healing skin wounds with minimum scarring.

Class D Biomedical Device

- The SCTIMST became the first institution in the country to develop Class D medical devices that satisfy all statutory requirements of the Central Drugs Standard Control Organisation.
- Healing Capabilities:** Membrane forms of the scaffold, identified as Cholederm, healed different types of skin wounds including burn and diabetic wounds in rat, rabbit, or dog faster than similar products currently available in the market with minimal scarring as proved by several in-depth laboratory investigations focusing Type I and Type III collagen.
- Cost reduction & Income generation:** It is expected that with the introduction of **Cholederm** to the Indian market, the treatment cost can be reduced from Rs **10,000/- to Rs 2,000/-** making it more affordable to the common man.
 - The technology for recovering extracellular matrix from the gall bladder is not available to others and it gives a fair chance for competition in the international market. It will create an additional income-generating opportunity.
- Future development:** Researchers are developing injectable gel formulations of the scaffold that permits transvenous on-site delivery of the scaffold and for surface modification of polymeric medical devices.

LINK IT WITH: CDSCO, Classification of medical devices, Class D medical devices

Classification of medical devices

As per MEDICAL DEVICES RULES, 2017 Medical devices shall be classified in the following classes-

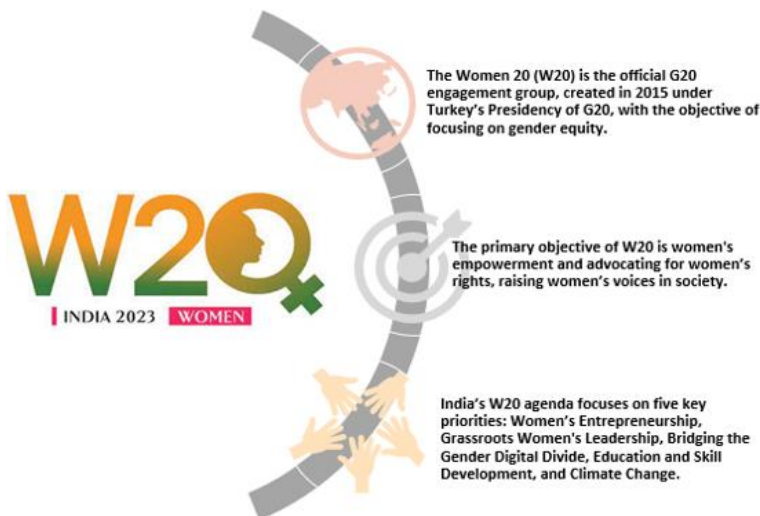
- (i) **low risk** - Class A
- (ii) **low moderate risk**-Class B
- (iii) **moderate high risk**- Class C
- (iv) **high risk**- Class D

W20 Summit**About:**

Recently Women 20 Summit was held in Mahabalipuram, Tamil Nadu with the theme of 'Women-Led Development- Transform, Thrive and Transcend'.

About Summit

- The summit will consist of an exhibition, a Janbhagidari event, 8 sessions and a closed-door meeting.
- Three sessions on the themes 'Breaking the Glass Ceiling', 'Economic Empowerment through Trade and Investment', and 'Investing in Services and Infrastructure for an Enabling Care Economy' took place on 16th June.
- The W20 summit ended with a closing session on 'Celebrating the Power of Women Empowerment', that aims to celebrate the power of women empowerment and acknowledge the contribution of women to overall societal and economic progress in the world.



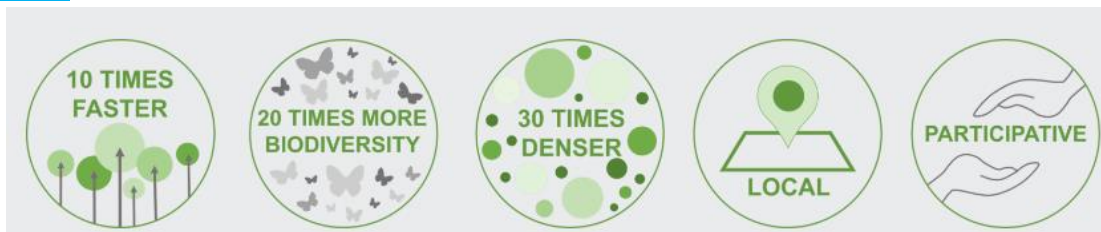
LINK IT WITH: G20, W20, Women empowerment

Miyawaki plantation method**About:**

Recently, the prime minister of India stated about the Japanese Miyawaki plantation method in his "Mann ki Baat" programme. He also cited the example of a Kerala-based teacher, Raafi Ramnath, who used the Miyawaki technique to transform a barren land into a mini forest called Vidyavanam by planting 115 varieties of trees.

Miyawaki plantation method

- Named after Japanese botanist Akira Miyawaki, this method involves planting two to four different types of indigenous trees within every square metre. In this method, the trees become self-sustaining and they grow to their full length within three years.
- The methodology was developed in the 1970s, with the basic objective to densify green cover within a small parcel of land.
- The plants used in the Miyawaki method are mostly self-sustaining and don't require regular maintenance like manuring and watering.
- Over the years, this cost-effective method has become the go-to solution for the civic body to restore the green cover in a space-starved city like Mumbai.
 - Meanwhile, to fight climate change, curb pollution levels, and increase the green cover of the financial capital, the Brihanmumbai Municipal Corporation (BMC) has been creating Miyawaki forests in several open land parcels of Mumbai.



LINK IT WITH: Biodiversity, Miyawaki method, Plantation method

Alligator Gar Fish**About:**

Recently, a non-native alligator gar fish, **known for its crocodile-like head and razor-sharp teeth**, was found in one of Kashmir's idyllic lakes, raising apprehensions about its impact on the native fish species.

Alligator gar fish

- The alligator gar is a close relative of the bowfin species. It is a ray-finned euryhaline fish and is one of the biggest freshwater fish in North America and the largest species in the 'gar' family.
- Alligator gar fish is not an Indian species, but in recent years it was also found in some parts of India like Bhopal, Kerala and from the waterbodies of Maharashtra and Kolkata.
- It can eat all types of fishes and therefore poses a threat to native species and to the overall ecosystem. For example, gar fish grows rapidly and has a life span of 20-30 years.
- Gar fishes are euryhaline and can grow up to eight feet. During winter, they can even sustain in the cold waters of Dal because the temperature they mostly live in is 11-23 degrees Celsius.



Concern related to alligator gar fish

- The finding sent alarm bells ringing among the scientists; they fear that the presence of non-native fish species will spell doom for the eco-fragile flora and fauna of the waterbody.
- It would kill all fingerlings of fish species already present in the waterbody and has a tendency to destroy natural aquatic life of Dal Lake.
- They can be dangerous for indigenous fish species.

LINK IT WITH: Dal Lake, Invasive species

Leptospirosis

About:

Leptospirosis has emerged as an important infectious disease in the world today.

Symptoms of leptospirosis

- The severity of a leptospirosis infection ranges from a mild flu-like illness to being life-threatening.
- The infection can affect many organs, reflecting the systemic nature of the disease. This is also why the signs and symptoms of leptospirosis are often mistaken for other diseases.
- In milder cases, patients could experience a sudden onset of fever, chills, and headache – or no symptoms at all. But in severe cases, the disease can be characterised by the dysfunction of multiple organs, including the liver, kidneys, lungs, and the brain.
- Animals exhibit a variety of clinical symptoms and indications. In cattle and pigs, the disease can potentially cause reproductive failure, stillbirths, and weak calves or piglets. Dogs experience a range of symptoms, including fever, jaundice, vomiting, diarrhoea, renal failure, and even death.

LINK IT WITH: leptospirosis, diseases, zoonotic bacterial disease

Beam-splitter & Quantum Computer

About:

Recently, IBM published a paper in which it claimed to have demonstrated that a quantum computer could solve a useful problem that today's conventional computers can't.

Key points

- In the new study, the researchers developed an acoustic beam-splitter – a tiny device resembling a comb, with 16 metal bars jutting out of it.
- It was placed in the middle of a 2-mm-long channel of lithium niobate. Each end of the channel had a superconducting qubit – a qubit whose circuit components were superconducting – that could both



Quantum Computing

- Quantum computers use qubits as their basic units of information.
- A qubit can be a particle – like an electron; a collection of particles; or a quantum system engineered to behave like a particle.
- Other forms of quantum computing use other units of information. For example, linear optical quantum computing (LOQC) uses photons, the particles of light, as qubits.



Phonons

- Photons are packets of light energy; similarly, phonons are packets of vibrational energy.



Beam-splitter

- Beam-splitters are used widely in optics research. Imagine a torchlight shining light along a straight line. This is basically a stream of photons.
- When a beam-splitter is placed in the light's path, it will split the beam into two: i.e. it will reflect 50% of the photons to one side and let the other 50% pass straight through.

emit and detect individual phonons. The whole setup was maintained at an ultra-low temperature.

- If these phonons were converted to sound, their frequency would be too high for humans to hear. Each phonon in the study represented, according to the paper, the "collective" vibration of around one quadrillion atoms.
- The team found that these phonons interacted with the comb just like photons interact with an optical beam-splitter.
- When a phonon was emitted from the left side of the channel, it was reflected half of the time and transmitted to the right side the other half. When phonons were emitted simultaneously from the left and the right sides, they both ended up on one side (as expected).
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LINK IT WITH: Quantum computing, Beam-splitters, Phonons

Star Rating Registration process for Mines

About:

Recently, Coal Ministry announces Commencement of Star Rating Registration process for Coal and Lignite Mines for FY 2022-23.

Star Rating Registration process for Mines

- The process started in order to foster competitiveness among mines and recognize their outstanding performance based on compliance of statutory provisions, adoption of advanced mining technology and economic achievements.
- **The Star Rating policy aims** to evaluate mines based on various factors across **seven key parameters** namely,
 - Mining Operations,
 - Environment-related parameters,
 - Adoption of Technologies,
 - Best Mining Practices,
 - Economic performance,
 - Rehabilitation & Resettlement,
 - Worker-related Compliance and Safety & security.
- Coal Ministry aims to elevate the overall performance and sustainability of coal and lignite mining in the country by driving competitiveness and promoting responsible mining practices.
- **LINK IT WITH:** Mines, Star Rating Registration process

RBI's riot provisions

About:

- Recently, State government of Manipur has invoked a rarely used Reserve Bank of India (RBI) provision pertaining to restructuring and rescheduling of loans. It is based on chapter No. 7 of the "Reserve Bank of India (Relief Measures by Banks in Areas Affected by Natural Calamities) Directions, 2018", which is related to "Riots and Disturbances."

Provisions

- According to Reserve Bank of India (Relief Measures by Banks in Areas Affected by Natural Calamities) Directions, 2018-
 - Whenever RBI advises the banks to extend rehabilitation assistance to the riot/ disturbance affected persons.
 - It shall, however, be ensured that only genuine persons, duly identified by the State Administration as having been affected by the riots/ disturbances, are provided assistance as per the guidelines.
 - In the event of large-scale riots where most part of the State/Area is affected and the State Administration is not in a position to identify the riot/disturbance affected persons and subject to SLBC's specific decision, the onus of identifying genuine persons will rest with banks.

LINK IT WITH: Provisioning, RBI, RBI (Relief Measures by Banks in Areas Affected by Natural Calamities) Directions, 2018

Textile effluent pollution

About:

Recently an energy-efficient and eco-friendly technology developed using, biosurfactants and membrane technology will reduce textile effluent pollution significantly.

Key points

- NIT Warangal along with Prime Textiles, Rampur located in Kakatiya Mega Textile Park (KMTP), with support from IMPRINT, developed a pilot-scale textile effluent treatment plant using biosurfactants (BS), cavitation.
- The ability of the technology to generate oxidizing radicals in-situ, significantly reduced the reliance on external oxidizing agents.
- On the other hand, modifying the membrane (M) surface using boehmite sol synthesized using sol-gel process, decreased the pore size from micro-scale to nano-scale and led to a significant improvement in its performance.
- After optimizing individual systems, a pilot-scale setup has been set up at the Prime Textiles premises.
- The sequence of events that takes place in the pilot plant plays an important role in the treatment process of the effluent. The coagulation removes turbidity caused by suspended solids by destabilizing the charges of the particles using a chemical coagulant.
- The biofilm grown on MBBR reduces the heavy metal content, degrades the biodegradable pollutants while the cavitation phenomenon destroys all types of pollutants, resulting in the in-situ generation of radicals, and energy which are responsible for the pollutant degradation. Finally, surface modified membrane separates all the pollutants present in the wastewater.
- This joint effort has led to the transfer of technology and two patents. The technology offers a sustainable solution for the textile effluent from KMTP, converting the toxic wastewater to irrigation source.
- **LINK IT WITH:** Textile effluent, pollution, Waste management

Textile effluent Pollution

- **Hard to Treat Wastes:** This category of waste includes those that are persistent, resist treatment, or interfere with the operation of waste treatment facilities.
- **Hazardous or Toxic Wastes:** In textiles, hazardous or toxic wastes include metals, chlorinated solvents, non-biodegradable or volatile organic materials.
- **High Volume Wastes:** Most common large volume wastes include High volume of waste water.
- **Dispersible Wastes:** Waste stream from dyeing, finishing, print paste, lint etc. forms dispersible waste.

Radio telescopes

About

A radio telescope is a telescope that helps scientists 'see' the universe using radio waves. These telescopes collect faint radio waves coming from deep space, and with the help of other equipment focus and amplify them for scientific study.

Significant Features of Radio Telescope

- They can detect radio waves from a number of celestial objects, such as stars, galaxies, and black holes.
- They are ground-based, and not in orbit because they are usually quite large. This is because of the size of the antenna.
- They can travel long distances without interruption due to their large wavelengths, making them ideal to catch glimpses of stars behind dust clouds.

India's Giant Metrewave Radio Telescope (GMRT)

- India's GMRT was one of the world's six large telescopes that played a key role in finding the first direct evidence for the relentless vibrations of the fabric of the universe, caused by ultra-low frequency gravitational waves.
- Such waves are expected to originate from a large number of dancing monster black hole pairs, several million times heavier than the Sun.
- The results are considered a crucial milestone in opening a new, astrophysically-rich window in the gravitational wave spectrum.

LINK IT WITH: Major telescopes and their observatories, Major galactic discoveries, Various space agencies

QS World University Ranking

About

The Indian Institute of Technology (IIT) in Mumbai has achieved its highest rank ever, breaking into the world's top 150 universities in the latest edition of the QS World University Ranking.

The World Universities Ranking

- This marks the first time in eight years that an Indian higher education institution has made it to the top 150 list.
- Indian Institute of Science (IISc) Bangalore previously achieving this feat in 2016 with a ranking of 147.
- The UK-based ranking agency, QS Quacquarelli Symonds, has partly attributed the fluctuation to a revision of the assessment parameters this year.
- It introduced three new indicators — sustainability, employment outcomes, and international research network, each carrying a weightage of 5 per cent.
- IIT Bombay produced 15,905 academic papers from 2018 to 2022, generating 143,800 citations. It has recorded a research growth of some 17% over this period.
- India is the seventh most represented country globally and the third in Asia trailing only Japan (52 universities) and China (71 universities).
- India has two more entries in the world's top 500 universities with the University of Delhi (ranked 407th) and Anna University (ranked 427th) making their debut in this tier.
- Four new Indian universities: University of Petroleum and Energy Studies (UPES), Chitkara University, Guru Gobind Singh Indraprastha University, and the Indian Statistical Institute have been ranked this year.

LINK IT WITH: ASER 2022 report, Setting up of Foreign Higher Education Institutions in India

Government e-Marketplace

About

Government e-Marketplace (GeM) is a one stop portal to facilitate online procurement of common use Goods & Services required by various Government Departments.

Significance

- GeM has been instrumental in transforming the way government procurement is done in India. It aims to enhance transparency, efficiency and speed in public procurement.
- As on 31st March 2023, GeM had recorded a staggering ₹ 2 lakh crore of Gross Merchandise Value (GMV) in FY 2022-23.
- Cumulatively, GeM has surpassed the ₹ 4.29 lakh crore GMV since its inception, with the overwhelming support of its stakeholders.
- The total number of transactions on GeM has also crossed 1.54 crore. GeM is catering to the diverse procurement needs of over 69,000 government buyer organisations.
- The portal features over 11,800+ product categories as well as over 280+ service categories.
- Based on various studies, the minimum savings on the platform are about 10%, which translates into a savings of Rs 40,000 crore worth of public money.

LINK IT WITH: e-NAM, e-Governance

PEN Pinter Prize

About

British children's writer and performance poet Michael Rosen, 77, has been awarded the prestigious PEN Pinter Prize 2023. The prize is given to a writer from the UK, Ireland and the Commonwealth whose work is committed to a fearless exposition of truth about contemporary life.

Michael Rosen

- Rosen was the sixth British Children's Laureate between 2007 and 2009 and is known for making poetry accessible to children through his work and performances.
- His themes are often social, political and ethical.
- In *On the Move: Poems about Migration*, Rosen explores contemporary and historical migrations through his family's personal experience and from a global perspective on the ongoing migration drive across Europe.
- Rosen's most well-known works includes, *You Can't Catch Me* (1982), *You Wait Till I Am Older Than You* (1996), *Rover* (2007) and *Fantastic Mr Dahl*.

LINK IT WITH: Nobel Prize, Indian Awards, Order of the British Empire

GEF Agreement on new biodiversity conservation fund

About

The Global Environment Facility's (GEF) governing board has approved plans to establish a new fund to finance the implementation of the Kunming-Montreal Global Biodiversity Framework adopted in December 2022.

Biodiversity Conservation Fund

- The approval is important as nearly 50 per cent of its funds are to be used for biodiversity related work in the coming years during the GEF-8 period.
- GEF will provide \$1.4 billion to support efforts on environmental protection.
- The creation of this biodiversity fund is a game-changer for countries' ability to protect, restore, and ensure the sustainable use of nature.
- The proposed fund allocations are as follows:
 - 20 per cent will go to Indigenous Peoples and local communities.
 - 25 per cent will go to GEF agencies and must be enforced.

The Global Environment Facility

- GEF is a family of funds dedicated to confronting biodiversity loss, climate change, pollution, and strains on land and ocean health.
- Its grants, blended financing, and policy support helps developing countries address their biggest environmental priorities and adhere to international environmental conventions.
- Over the past three decades, the GEF has provided more than \$23 billion and mobilized \$129 billion in co-financing for more than 5,000 national and regional projects.

LINK IT WITH: COP Conference on Biological Diversity, UNEP Environment Fund

Exploration of coal and lignite scheme

About

- The Cabinet Committee on Economic Affairs (CCEA) has approved the continuation of Exploration of Coal and Lignite Scheme that entails an estimated expenditure of ₹2,980 crore.
- The time period for the extension is from 2021-22 to 2025-26 co-terminus with the 15th Finance Commission cycle.
- Under the scheme, exploration for coal and lignite is conducted in two broad stages.
 - For promotional exploration the outlay is Rs 1650 crore.
 - For detailed drilling in areas other than that of Coal India Ltd is Rs 1330 crore.

Dynamics of Coal Sector in India

- As per the draft report of Niti Aayog, the coal demand is expected to remain in the range of 1,192-1,325 million tonnes by 2030.
- A plan to increase all India coal production to the level of 1 BT by 2023-24 and coal production by Coal India Limited (CIL) to 1 BT by 2024-25 has been prepared.
- CIL has taken steps to upgrade the mechanized coal transportation and loading system under 'First Mile Connectivity' projects.

LINK IT WITH: India's dependence on Coal for power generation

District Good Governance Index (DGGI)

About

The DARPG and government of Arunachal Pradesh with Knowledge Partner CGG, Hyderabad jointly released the first District Good Governance Index of Arunachal Pradesh on 8th June 2023.

- More than 50% of the Districts have reported increase in disbursement of self-employment loans.
- Nineteen (19) Districts have reported positive Cumulative Annual Growth Rate (CAGR) in Agriculture Credit
- All Districts except two reported reduction or maintenance in the area under Jhum cultivation.
- Increase in the yield of rice production in most of the Districts.
- Functional girls' toilets in almost all the Schools.
- Nine Districts achieved immunization rate of more than 85%.
- 22 Districts achieved more than 70% institutional deliveries.
- Sex ratio improved in most of the Districts.
- 21 Districts have covered more than 50% of the households with a Health Scheme or Health insurance.

New Atlantic Declaration**About**

President Joe Biden and British Prime Minister Boris Johnson met for the first time to highlight their nations famed special relationship through the New Atlantic Declaration.

New Atlantic Charter

- It includes an international economic architecture that shows their economic strength and help to lift millions around the world out of poverty.
- The strong bilateral relationship is visible from the cooperation on defense and security, leadership in science and technology, and deep ties between our people and civil societies.
- Both the countries resolve to partner to build resilient, diversified, and secure supply chains and reduce strategic dependencies.
- Includes commitment to continuing the lead in the technologies of the future and technology protection toolkits to ensure that emerging technologies work for, not against, their democracies and security.
- They resolve to work together to ensure the safety, prosperity, and security of their nations and peoples.

LINK IT WITH: AUKUS, NATO, UNO

LAN Radio**About**

The Indian Army has sealed a deal with a Bengaluru-based company to procure the indigenously-developed tactical LAN radio.

Tactical LAN Radio

- It is a state-of-the-art high-bandwidth backhaul wireless radio equipment for the provisioning of reliable communication.
- It is the second contract that the Army has firmed up under the framework of Innovations for Defence Excellence (iDEX).
- The LAN radio solution offers an enhanced range of communication and embedded frequency hopping mechanism to preclude chances of interception.
- The system also incorporates enhanced safety features and can operate continuously for 48 hours on a single-set basis, without any breakdown.

Innovations for Defence Excellence (iDEX)

- iDEX aims at creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, start-ups, individual innovators, R&D institutes & academia.
- It will be funded and managed by a 'Defence Innovation Organization (DIO)' which has been formed as a 'not for profit' company for this purpose.
- iDEX will function as the executive arm of DIO, carrying out all the required activities while DIO will provide high level policy guidance to iDEX.

LINK IT WITH: Atmanirbhar Bharat, Defence Indigenisation

'Ladli Bahna' scheme**About**

- Madhya Pradesh government launched a scheme to make women financially independent.
- Each woman will be given 1,000 rupees per month in the bank accounts with about 1.25 crore women as potential beneficiaries.
- The State government has also issued a phone number 181 for the help of women.
- Ladli Bahna Army will also be formed for women empowerment and security. This Army will help in providing security to women and take benefits of government schemes.
- The goals include:
 - Enhancing women's economic independence.
 - Improving their health and nutrition status.
 - Expanding their influence over family decisions.

LINK IT WITH: Women Empowerment, Election Freebies

E27 Fuel and Ethanol Blended Diesel Fuel

About

Hindustan Petroleum Corporation Limited (HPCL) has successfully launched pilot study on vehicles using E27 fuel and Ethanol Blended Diesel Fuel.

Significance

- HPCL has become the first Oil Marketing Company in India to initiate such a comprehensive research program which aims to promote the adoption of Ethanol Blending in gasoline.
- The roadmap for ethanol blending outlines a phased rollout plan ensuring widespread availability of E20 by April 2025.
- It further emphasizes the introduction of E20 material-compliant and E10 engine-tuned vehicles starting followed by the production of E20-tuned engine vehicles from April 2025.
- HPCL successfully launched E20 fuel on February 2023, at 23 retail outlets across the country.
- It is projected that by 2025, the use of E20 fuel will contribute to the reduction of more than 200 lakh MT of GHG emissions.

LINK IT WITH: Roadmap for Ethanol Blending in India by 2025, Flex-fuel Vehicles, Hydrogen Fuel Cell Technology

Captagon pills

About

The reports of the rising prominence of Captagon shows that the drug was being widely consumed by the Islamic State (IS) and Syrian fighters to increase alertness and suppress appetite during their gruelling battles.

What is Captagon?

- Captagon is a highly addictive amphetamine-type drug, which is produced mainly in Syria and widely smuggled across West Asia.
- Amphetamine-based drugs stimulate the central nervous system and provide a boost of energy, enhance someone's focus, let someone stay awake for longer periods of time, and produce a feeling of excitement.
- The currently prominently used Captagon is actually a counterfeit version of a medicine with the same brand name which was first produced in the 1960s by the German pharma company.
- It can cause loss of appetite, heart problems, high body temperature, skin flushing, memory loss, problems thinking clearly, and stroke.
- Nazi Germany supplied crystal meth to its soldiers while the Allied forces gave their troops amphetamine sulfate to help them stay awake and alert during World War 2.

LINK IT WITH: Drug Abuse

New chikungunya vaccine

About

A new clinical study shows promising results of a Phase III chikungunya vaccine trial and for the first time the shot has been tested in humans. If approved by regulators, the vaccine would have the capacity to protect millions of people.

Chikungunya Vaccine

- According to the Lancet study, 28 days after a single vaccination, the vaccine resulted in virus-neutralizing antibody levels lasting up to 180 days in 98.9% of study participants.
- The vaccine contains a modified, live version of the chikungunya virus that can replicate in the body without causing severe illness.
- However, there are potential risks associated with live-virus types of vaccines, including the rare possibility of the weakened virus reverting to a more virulent form.
- In 2018, the chikungunya virus was listed as a priority pathogen for vaccine development by the World Health Organization.

LINK IT WITH: Types of Vaccines, Climate Change and Disease Spread

MAP CONNECT

PLACES IN NEWS-INDIA

Gaula River

- o Gaula river originates from Sattal Lake and flows through the regions of Shahi, Haldwani and Kathgodam.
- o It was in news due to rampant mining.
- o It an important tributary of Ramganag, and Ganga River System.
- o It flows in Kamoun Himalaya.

Amchang Wildlife Sanctuary

- o Indian Army generates unique ecosystem for peaceful co-existence with wild animals in this protected area.
- o It is small sanctuary, rich in mammals and birds.
- o Amchang's habitat is dominated by tropical moist deciduous forest with semi-evergreen forest in depressions and river-valleys.
- o Around 100 Elephant are found in this sanctuary.

Juna Khattiya site

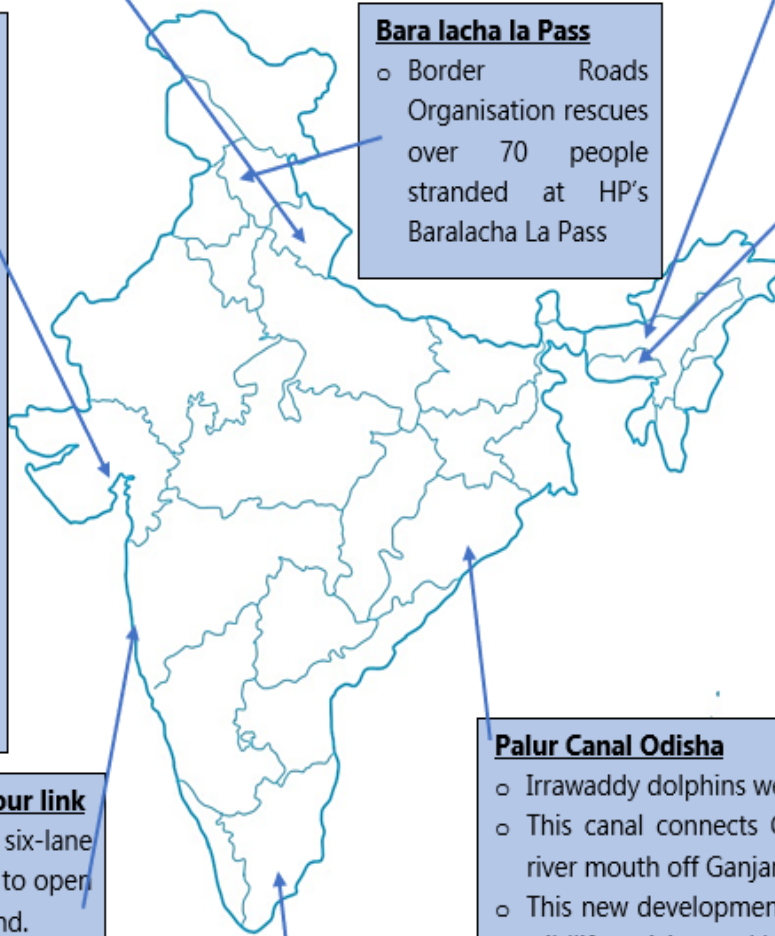
- o It is an Early Harappan burial site.
- o The burial site, spread over 16 hectares in a Kutch village, is considered to be the largest pre-urban Harappan cemetery.
- o A shell bangle, pottery shards, stones blades, even human skeletal remains were found.

Bara lacha la Pass

- o Border Roads Organisation rescues over 70 people stranded at HP's Baralacha La Pass

Nohkalikai Falls

- o Cherrapunji, one of the wettest places on earth, is home to the stunning Nohkalikai Falls.

**Mumbai Trans harbour link**

- o The 22-kilometre, six-lane bridge is expected to open for traffic by yearend.
- o It is being built with loan assistance from the Japan International Cooperation Agency.
- o The link will provide faster connectivity with the proposed Navi Mumbai International Airport and cities like Pune, Goa, and Bengaluru.

Palur Canal Odisha

- o Irrawaddy dolphins were sighted in canal.
- o This canal connects Chilika lake with Rushikulya river mouth off Ganjam coast.
- o This new development has brought cheer among wildlife activists and local people.

Cumbum Valley

- o The region of Cumbum in Tamil Nadu is one of South India's most fertile lands.
- o It is famous for Grape Cultivation apart from paddy, vegetables, mango and pomegranate.

MAP CONNECT-World

Vladivostok Port

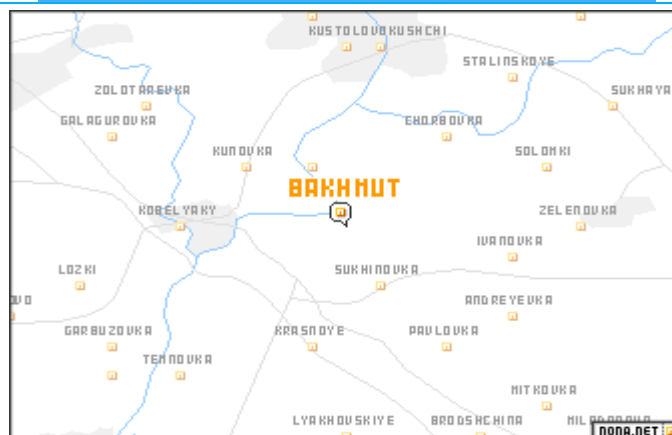
- It is a major seaport located in the city of Vladivostok, Russia.
- It is situated on the Pacific coast in the Primorsky Krai region and serves as an important transportation hub for the Far East and Northeast Asia.
- Vladivostok Port also serves as a base for passenger transportation, with ferry connections to various destinations in Russia, Japan, and South Korea.

**Hiroshima Peace Memorial**

- Prime Minister paid floral tributes at the Hiroshima Peace Memorial Museum.
- The Hiroshima Peace Memorial (Genbaku Dome) was the only structure left standing in the area where the first atomic bomb exploded on 6 August 1945.

**Bakhmut city**

- Ukraine has reported heavy fighting in the eastern region of Donetsk as its forces made gains near the devastated city of Bakhmut.
- The country consists almost entirely of level plains.
- The city of Bakhmut is located in the eastern part of Donetsk, more than 400 miles southeast of Kyiv, and 10 miles from the Luhansk region's

**Fraser Island**

- Fraser Island, located off the coast of Queensland, Australia, is the world's largest sand island.
- Fraser Island has been recognized as a UNESCO World Heritage Site since 1992 due to its exceptional natural values.
- It is protected and managed under the Fraser Island Great Sandy National Park.
- The Island is famous for its breathtaking lakes, including Lake McKenzie, Lake Wabby, and Lake Birrabeen..
- Fraser Island holds significant cultural value for the Butchulla people, the traditional owners of the land.



Sabang port

- Sabang Port is a seaport located in the Aceh province of Indonesia.
- It is located at the entrance of the Malacca Strait, one of the world's busiest shipping routes.
- Sabang Port is also home to the Asia-Africa-Europe-1 (AAE-1) submarine cable landing station.

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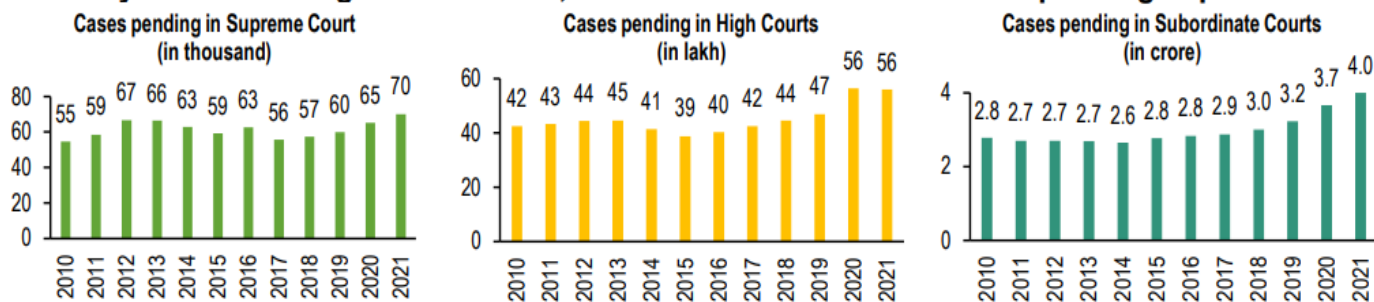
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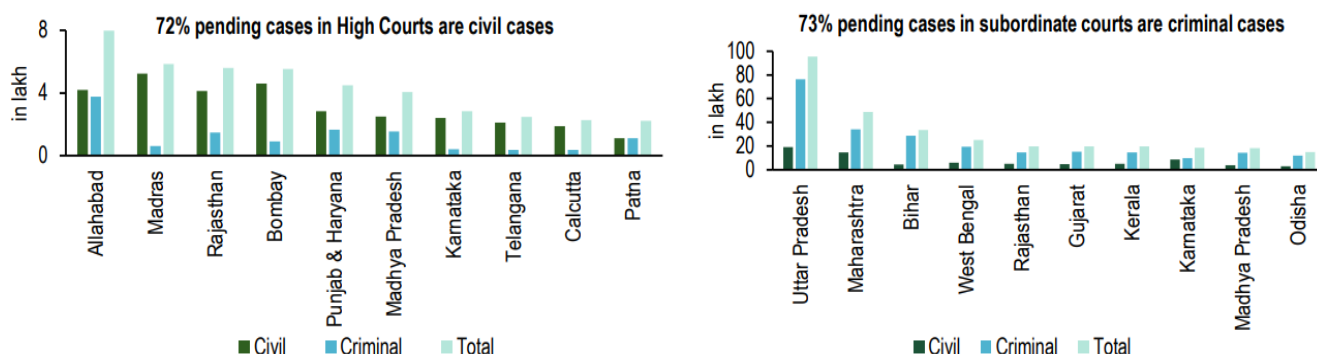
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Data of the Month: Pendency and Vacancies in the Judiciary:

Pendency of cases rising across courts; over four and a half crore cases pending at present

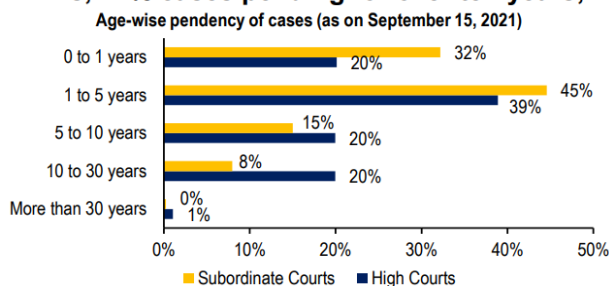


Note: 2021 data for the Supreme Court is as of September 4, 2021. 2021 data for High Courts and subordinate courts is as of September 15, 2021.



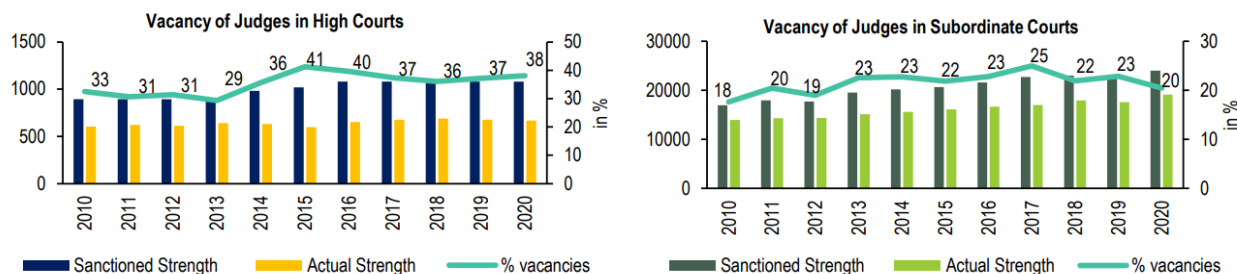
Note: Data as of September 15, 2021.

In HCs, 21% cases pending for over ten years; in subordinate courts, 23% cases for over five years



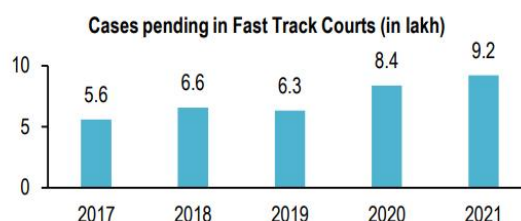
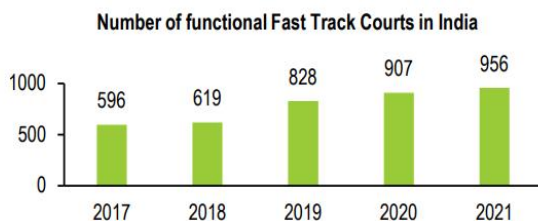
- In High Courts, 41% cases have been pending for five years or longer. In subordinate courts, nearly one in every four cases has been pending for at least five years.
- A total of almost 45 lakh cases have been pending before subordinate courts and High Courts for over ten years. 21% cases in High Courts and 8% cases in subordinate courts have been pending for over ten years.

Vacancies in the judiciary also contribute to high pendency of cases



- There is a shortage of judges to decide cases. As on September 1, 2021, the Supreme Court had one vacancy out of the sanctioned strength of 34 judges. In the High Courts, 42% of the total sanctioned posts for judges were vacant (465 out of 1,098). Five High Courts (Telangana, Patna, Rajasthan, Odisha, and Delhi) had more than 50% vacancies. High Courts of Meghalaya and Manipur had no vacancies.
- As on February 20, 2020, in subordinate courts, 21% posts out of the sanctioned strength of judges were vacant (5,146 out of 24,018). Amongst states having a sanctioned strength of at least 100 judges, subordinate courts in Bihar had the highest proportion of vacancies at 40% (776), followed by Haryana at 38% (297) and Jharkhand at 32% (219).

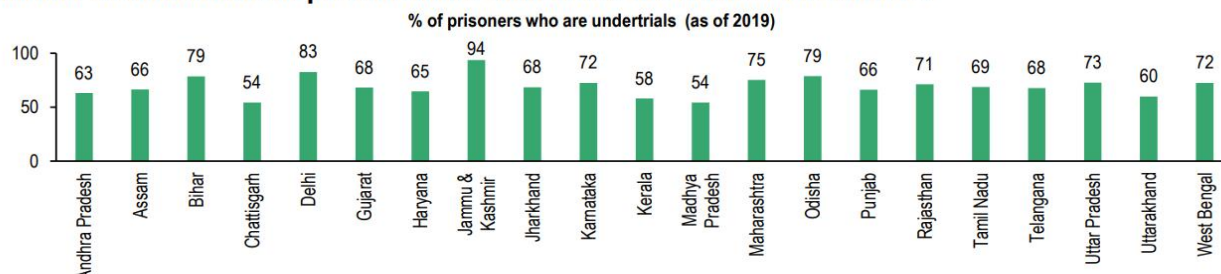
Tribunals and special courts also witness significant pendency and vacancies



Note: Data for 2021 is as on May 31, 2021.

- Tribunals and special courts (such as Fast Track Courts and Family Courts) which were set up to ensure speedy disposal of cases also witness high pendency and vacancies. For instance, at the end of 2020, 21,259 cases were pending before the National Company Law Tribunal (NCLT). As of April 2021, the NCLT had 39 members out of a sanctioned strength of 63.
- In the two decades since Fast Track Courts were first set up, pending cases in both subordinate courts as well as these Fast Track Courts have continued to increase. As on May 31, 2021, over 9.2 lakh cases were pending in 956 Fast Track Courts across 24 states/UTs (the remaining do not have functional Fast Track Courts).

Number of undertrials in prisons more than twice the number of convicts



Note: The chart shows data for all states and UTs where there are at least 2,000 undertrials.

- Pendency of cases for long periods has resulted in a large number of undertrials (accused persons who are either awaiting or undergoing trial) in India's prisons. As on December 31, 2019, almost 4.8 lakh prisoners were confined in Indian jails. Of these, over two-thirds were undertrials (3.3 lakh).
- 5,011 undertrials were confined in jails for five years or longer. Uttar Pradesh (2,142) and Maharashtra (394) accounted for over half of such undertrials.

THEMATIC ESSAYS

- Liberty does not exist in the absence of morality
- We have arranged a civilization in which most crucial elements profoundly depend on science and technology
- Our tradition teaches tolerance; our philosophy preaches tolerance; our constitution practises tolerance



SCAN THIS QR FOR
MODEL CONTENT

Concept Clearing Assignment

1. Bretton Woods Institutions played an important role for the making of sustainable world order but they have been struggling in more recent times as problems of rising inequality, financial instability and Protectionism have re-emerged. Discuss and give your reformative suggestion.
2. The position of the national capital region is politically complex. Describe the issues Associated with the Lieutenant governor and elected government of the national capital region.
3. India has emerged as an appealing destination for foreign direct investment (FDI) but in the fiscal year ending March 2023, India witnessed a significant decline in Foreign Direct Investment (FDI) inflow. Critically Analyse.
4. Sustainable Aviation Fuel presents an opportunity to achieve sustainable development without compromising air connectivity and economic growth. Critically Analyse.
5. In recent times where conflicts in world order have increased, discuss the role of the United Nations peacekeeping force in fostering peace and security, protecting civilians, and assisting in restoring stable governance structures.
6. The deteriorating productivity of the Parliament affects its democratic legacy. What are the reasons and implications of lower productivity of the parliament? Give your suggestion to increase parliament's productivity.
7. International Seabed Authority is deliberating upon the potential benefits of international seabed mining. What could be the potential challenges and technological solutions for the future of the deep-sea mining?
8. Unmanned aerial vehicles are becoming an integral part of defence structure around the globe. In this context, what are the steps taken by India to boost adoption of unmanned aerial vehicles in ensuring its internal security?
9. The Chola Kings used Sengol as a symbol of justice, transfer of power and good governance. In this context, what is the significance of transfer of power and the rituals associated with it.
10. Forum shopping is being used as a part of litigation strategy by lawyers and petitioners. Discuss its impact on the judicial process and principle of natural justice.
11. Examine the concept of default bail in the context of safeguarding the rights of the accused and ensuring speedy justice in the Indian judicial system.
12. Due to climate change, heat waves have become the most dangerous form of natural hazards, whose frequency and intensity will increase consistently. Discuss.
13. Discuss the areas of cooperation and concern between India and Singapore in the context of Southeast Asia and changing world order.
14. Discuss the role of G20 Disaster Risk Reduction Working Group (DRR WG) in developing disaster management strategies, recognizing the interconnectedness and interdependence of the world and also Describe various measures taken in India for Disaster Risk Reduction (DRR).
15. The role of the Indo-Pacific Economic Framework for Prosperity (IPEF) is very crucial in terms of integration, economic growth and security in the Indo-pacific region. Critically analyse.

1. Consider the following statements:

1. Forum shopping is the deliberate practice of selecting a specific court for a legal case.
2. It is one of the factors to balance the workload of courts.
3. It is allowed in the USA and UK but prohibited in India.

How many of the statements given above are Incorrect?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

2. Consider the following statements:

1. Compared to previous Lok Sabhas, the 17th Lok Sabha had shorter sessions.
2. As per sitting days 17th Lok Sabha is going to be the largest full-term Lok Sabha since 1952.
3. Election of deputy speaker of Lok Sabha shall be held in 15 days after the formation of new Lok Sabha.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

3. Consider the following statements:

Statement-I:

Government of the national capital territory has the power to make laws for the NCT with respect to any of the matters in the State List or Concurrent List except land, police and order and public order.

Statement-II:

Land, police and public orders are the subject of the union list.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect.
- (d) Statement-I is incorrect but Statement-II is correct

4. Consider the following pairs:

Types of bails Features

1. Interim Bail: It is a temporary bail granted by the court.
2. Regular Bail: It is granted to a person even before their arrest
3. Anticipatory Bail: It is granted by the court while the application for regular bail is pending.
4. Default Bail: It is granted when police failed to complete an investigation within a specified period

How many of the above pairs are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All pairs

5. Consider the following statements:

1. Serbia, a landlocked country in Eastern Europe.
2. Kosovo is a region that lies to Serbia's southeast.
3. Kosovo declared independence from Serbia in 2014.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

6. Consider the following statements in the context of United Nations peacekeeping force:

1. United Nations Peacekeeping began in 1948.
2. The Indian Army has established a Centre for UN Peacekeeping (CUNPK) in New Delhi.
3. The primary objective is to foster peace and security, protect civilians, and assist in restoring stable governance structures.

How many of the statements given above are Incorrect?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

7. Consider the following statements:

1. Singapore is the largest source of Foreign Direct Investment (FDI) into India.
2. India's Pay Now and Singapore's UPI were integrated to enable faster remittances.

Which of the statements given above is/are correct?

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

8. Consider the following countries:

1. Australia
2. Fiji
3. China
4. India

5. USA 6. Thailand
How many of the above-mentioned are partner countries of the Indo-Pacific economic framework for prosperity?

- (a) All of the above (b) Only three
(c) Only four (d) Only five

9. Consider the following statements regarding G20 summits:

1. The G20 Summit is held every two years, under the leadership of a rotating Presidency.
2. The G20 members represent around two-thirds of the world population.
3. India is hosting the 17th G20 summit in 2023.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

10. Consider the following statements:

1. The Bretton Woods system was established in 1945 in New Hampshire, USA.
2. A country must first join the International Monetary Fund to become a member of the world Bank.
3. The International Bank for Reconstruction and Development (IBRD) and International Development Agency (IDA) together are often referred to as the Bretton wood twins.
4. Global economic prospects report released by the World bank.

How many of the above statements are incorrect?

- (a) Only one (b) Only two
(c) Only three (d) None

11. Consider the following statements:

1. World celebrated the 10th International Yoga Day at 21 June 2023.
2. Yoga at the North Pole and South Pole will be held in coordination with Ministry of external affairs (MEA) at Himadri.

Which of the statements given above is/are correct?

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

12. With reference to GI tag, consider the following pairs:

GI tag	: Location
1. Horn Craft	: Sambhal
2. Gaura Patthar Hastashlip	: Mahoba
3. Home Furnishings	: Barabanki
4. Handmade Paper	: Kalpi

How many of the above pairs are correctly matched?

- (a) Only one (b) Only two
(c) Only three (d) All four

13. Consider the following statements regarding evergreening of Loans:

1. It is Process of removing bad loans from banks' books after making provisions.
2. It Conceals the true status of non-performing assets or bad loans.
3. It is referred to as zombie lending.

How many of the statements given above are correct?

- (a) Only one (b) Only two
(c) Only three (d) None

14. Consider the following statements:

1. In FY22, India witnessed the 2nd highest FDI inflow after USA.
2. Singapore, USA, Mauritius have emerged as the top three countries contributing to FDI equity in flows in India.
3. FDI is seen as a short-term investment in the country's economy.

How many of the statements given above are correct?

- (a) Only one (b) Only two
(c) Only three (d) None

15. With reference to Prepaid Payment Instruments (PPIs), Consider the following statements:

1. PPIs can take the form of cards or digital wallets.
2. Small PPIs classified as PPIs up to Rs 10,000 without cash loading capability.
3. Only Banks are authorized to issue PPIs.
4. Cash loading of PPIs is limited to Rs 50,000 per month.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 1 and 4 only
(c) Both 1, 2 and 3 only
(d) 1, 2, 3 and 4

16. Consider the following statements:

1. Fluorinated Gases have a much higher heat-trapping potential compared to other GHGs.
2. The primary GHGs include carbon dioxide (CO₂) and methane (CH₄) only.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only

- (c) Both 1 and 2
(d) Neither 1 nor 2

17. Consider the following statements:

1. Sustainable aviation fuel (SAF) is derived from renewable sources such as non-food crops, agricultural residues, waste oils, and algae.
2. SAF can reduce carbon dioxide emissions by up to 80% compared to conventional jet fuel.

Which of the statements given above is/are correct?

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

18. Consider the following statements:

1. Ground-level ozone is referred to as tropospheric or good ozone.
2. Ground-level ozone formation is more prevalent during the winter months.
3. Ground-level ozone is formed as a Primary pollutant within the lower atmosphere.

How many of the statements given above are correct?

- (a) Only one (b) Only two
(c) Only three (d) None

19. With reference to United Nations early warning report, consider the following Asian countries:

1. Yemen
2. Pakistan
3. Myanmar
4. Oman
5. Kuwait

How many of the above are defined as hunger hotspot:

- (a) Only four (b) Only two
(c) Only three (d) All five

20. Consider the following statements:

Statement-I: The Artemis Accords aims to land first woman, first person of color and first car on the moon.

Statement-II: Israel, Ukraine, and Colombia are signatories of the Artemis Accords.

Which of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

21. Consider the following statements:

Statement-I: Sodium ion battery uses aluminium whereas Lithium-ion battery uses copper.

Statement-II: Sodium is 5000 times more abundant than lithium.

Which of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

22. Consider the following statements regarding United Nations Convention on the Law of the Seas (UNCLOS):

1. UNCLOS is considered to apply to states regardless of whether or not they have signed or ratified it.

2. India is a state party to the UNCLOS.

Which of the statements given above is/are correct?

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

23. Consider the following statements:

Statement-I: Agni Prime have a strike range of up to 5,000 km.

Statement-II: Agni-5 has its origin in the integrated guided missile development programme.

Statement-III: Trishul is a short-ranged surface to surface missile.

How many of the statements given above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

24. The term "Aspartame" often heard in the news is related to which of the following?

- (a) Artemis Accords
(b) Artificial Sweetener
(c) Biodegradable Supercapacitor
(d) Solar Ultraviolet Imaging Telescope

25. Consider the following activities:

1. Doorstep Pizza delivery.
2. Spraying fertilizers and pesticides on crops.
3. Inspecting the craters of active volcanoes.

At present level of technology, which of the above activities can be successfully carried out by using drones?

- (a) Only one (b) Only two
(c) All three (d) None

26. Consider the following statements: (UPSC 2022)

1. A bill amending the Constitution requires a prior recommendation of the President of India.
2. When a Constitution Amendment Bill is presented to the President of India, it is obligatory for the President of India to give his/her assent.
3. A Constitution Amendment Bill must be passed by both the Lok Sabha and the Rajya Sabha by a special majority and there is no provision for joint sitting.

Which of the statements given above are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

27. Consider the following: (UPSC 2022)

1. AarogyaSetu
2. COWIN
3. DigiLocker
4. DIKSHA

Which of the above are built on top of open-source digital platforms?

- (a) 1 and 2 only (b) 2, 3 and 4 only
(c) 1, 3 and 4 only (d) 1, 2, 3 and 4

28. Consider the following statements:(UPSC 2022)

1. Biofilms can form on medical implants within human tissues.
2. Biofilms can form on food and food processing surfaces.
3. Biofilms can exhibit antibiotic resistance.

Which of the statements given above are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

29. Which of the following are nitrogen-fixing plants? (UPSC 2022)

1. Alfalfa
2. Amaranth
3. Chickpea
4. Clover
5. Purslane (Kulfa)
6. Spinach

Select the correct answer using the code given below:

- (a) 1, 3 and 4 only (b) 1, 3, 5 and 6 only
(c) 2, 4, 5 and 6 only (d) 1, 2, 4, 5 and 6

30. The "Miyawaki method" is well known for the:(UPSC 2022)

- (a) Promotion of commercial farming in arid and semi-arid areas
- (b) Development of gardens using genetically modified flora
- (c) Creation of mini forests in urban areas
- (d) Harvesting wind energy on coastal areas and on sea surfaces

Answer Key

1. B
2. A
3. C
4. B
5. B
6. d
7. A
8. d
9. A
10. B

11. D
12. D
13. B
14. A
15. B
16. A
17. C
18. D
19. C
20. D

21. C
22. C
23. A
24. B
25. C
26. B
27. D
28. D
29. A
30. C