CONVENTION ON BIODIVESITY(CBD)

Pg: 61

United Nations Biodiversity Conference

COP15 / CP-MOP10 / NP-MOP4

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The CATALYST is a monthly magazine for current affairs which tries to give aspirants an in-depth comprehension of certain topics which appeared in different sources over the month. The Magazine has been designed in such a way that the reading experience is enriching and insightful for the readers.

The contents have been grouped into a thematic structure to help aspirants focus on the overall GS syllabus.

Section I contains theme based Current affairs Analysis:

I. Within the Sub themes first few topics will be Prelims oriented followed by indepth coverage of Mains Topics.

II. A Section with an Essay Topic is also added.

III. The last section will have Questions for practice*.

IV. Fact Sheet and Quotes have also been provided

the CATALYST

From the Editor's Desk

Dear Readers,

This is the last Magazine of the year 2022. While we anticipate a new year, the past year has been a learning for many of us. Hope you too would have experienced many learning curves. Hold on to the positives and leave back bitter experiences.

With the new year 2023, you will be entering into the the year where most of you will be writing the exam. Time rolls by and waits for none. In quick time you will be facing the stress as May 28 approaches. I am stating this just to awaken you from your slumber. Be wary and take control.

When we started the essay classes for our Core Batch students, we could notice that there is so much of apprehension to write an essay. So this time instead of publishing an essay I have written on some factors to be considered for essay writing. Kindly go through them if you are a novice.

In this December Issue (From Dec 1 to Dec 31, 2022, Current Affairs), we have covered a range of topics with special emphasis on **Remote Voting Machine, Wassenaar Arrangement,National Policy Of Rare Diseases (Nprd),Cop 15 Of Convention On Biological Diversity,Brain Eating Amoeba,Draft Cyber Security Strategy,Etc**

We are constantly motivated by the reception given by our dear readers. We aspire to enrich the forthcoming issues. All feedback is welcome and suggestions to improve the magazine can be sent to sivarajaveliasacademy@gmail.com.

Sincerely,
P.Mohan

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POLITY AND GOVERNANCE

What's Inside?

ROHINI COMMISSION

Why in news?

After more than five years of its formation, the commission for the sub-categorisation of the Other Backward Classes (OBC) is now in the final stages of finishing its task of coming up with a formula to further classify the nearly 3,000 caste groups and preparing a report on it, according to multiple officials aware of the developments.

About

Rohini Commission is constituted under **article 340** of the Indian constitution to check on the issue of **Sub Categorization within Other Backward Classes (OBCs)** in the Central List.

The four-member commission setup in **2017 is** headed by former Delhi High Court judge, Justice G. Rohini (Retd), while the other members are Dr J.K. Bajaj, Director, Centre for Policy Studies, Gauri Basu, Director, Anthropological Survey of India, Kolkata (ex-officio member), and Vivek Joshi, Registrar General and Census Commissioner (ex-officio member).

The mandate of the commission includes examining the extent of **inequitable distribution of benefits of reservation** among the castes or communities included in the broad category of Other Backward Classes with reference to such classes included in the Central List, working out the **mechanism, criteria, norms and parameters** in a scientific approach for their sub-categorisation.

The commission's mandate is also to take up the exercise of identifying the respective castes or communities or sub-castes or synonyms in the Central List of Other Backward Classes and classifying them into their respective sub-categories.

The Justice Rohini Commission has compiled data on these religiously restricted entries and is likely to recommend removal of the anomaly in the central list of OBCs to ensure that the backward class status is independent of religion

Need for subcategorization

In India, OBCs get 27 per cent reservation in jobs and education provided by the Centre. The sub-categorisation is being demanded as a handful of total communities get a major chunk of the reserved jobs and seats in educational institutes.

As there is limited data on the population of various sub-categories of OBCs, the commission was appointed to collect it. This is expected to help the government in forming official OBC sub-categories and ensure a more equitable representation of all sub-communities.

The Hindu Muslim anomaly in granting reservations. For instance, while a Dhobi (washerman) who is a Muslim is included in the OBC list, a Hindu Dhobi has been included in the SC list

Backward Classes Commissions

1.The First Backward Class Commission (Kaka Kalelkar Commission)

The First Backward Class Commission was set up by a **Presidential Order** under *Article 340 of the Constitution of India* on Jan 29th, 1953, under the Chairmanship of Shri Kaka Kalelkar (popularly known as Kaka Kalelkar Commission).

In its report, it prepared a list of 2399 backward castes or communities for the entire country and 837 of these were classified as 'Most Backward'. **The Report was not implemented by the Government.**

2.The Second Backward Class Commission (Mandal Commission)

Again in the year 1979, a Backward Classes Commission was appointed **to investigate the conditions of socially and educationally backward classes** within the territory of India, popularly known as Mandal Commission.

The Commission submitted its report on 31" December, 1980. In its report, the Commission identified 3743 castes/communities.

National Commission for Backward Classes

The Supreme Court of India in its landmark judgement, in Indira Sawhney and Others vs Union of India and Others dated 16.11.1992 directed the Government of India, State Governments and Administrations of Union Territories to constitute a permanent body in the nature of Commission or Tribunal for entertaining. examining and making recommendations upon requests for inclusion and complaints of over- inclusion and under-inclusion in the list of OBCs.

Thereafter, the NCBC from time to time had been making inclusion / amendment in the Central List of OBCs for different States/UTS. As on date, the Central List of OBCs consists of 1963 entries.

NATIONAL STATISTICAL COMMISSION (NSC)

Why in news?

Government of India had appointed Rajeeva Laxman Karandikar, Professor Emeritus at CMI, as the part-time chairperson of the National Statistical Commission (NSC) of India for a period of three years.

About

The Government of India **through a resolution** dated 1st June, 2005 set up the National Statistical Commission (NSC). The setting up of the NSC followed the decision of the Cabinet to accept the recommendations of the **Rangarajan Commission**, which reviewed the Indian Statistical System in 2001.

.The NSC has four Members besides a Chairperson, each having specialization and experience in specified statistical fields.

The Commission has to function as **a nodal agency for core statistical activities** including monitoring and enforcement statistical priorities and setting standards and to ensure statistical co-ordination among the different agencies involved.

The objective of its constitution is to reduce the problems faced by statistical agencies in the country in relation to collection of data. Statistical agencies like the Central Statistics Office (CSO) and the National Sample Survey Organisation (NSSO) face numerous problems in collecting data from State and Central government departments, but an autonomous body like the NSC is thought to be more able to coordinate things as a statutory status would lend it teeth.

It would lay special emphasis on ensuring collection of unbiased data so as to restore public trust in the figures released by the Government.

Functions of National Statistical Commission

Following are the major functions of the Nationals Statistics Commissions.

1. To identify the core statistics, which are of national importance and are critical to the development of the economy;

2. To constitute professional committees or working groups to assist the Commission on various technical issues;

3. To evolve national policies and priorities relating to the statistical system;

4. To evolve standard statistical concepts, definitions, classifications and methodologies in different areas in statistics and lay down national quality standards on core statistics;

5. To evolve national strategies for the collection, tabulation and dissemination of core statistics, including the release calendar for various data sets;

6. To evolve national strategies for human resource development on official statistics including information technology and communication needs of the statistical system;

SECRET SITTING OF LOKSABHA

Why in news?

The Opposition members,who were denied the opportunity to seek clarifications in the Rajya Sabha to Defence Minister Rajnath Singh's statement on the India-China stand-off, reminded the Modi Government about the 1962 India-China war, when Parliament discussed the incursions at length. The then Prime Minister, Jawaharlal Nehru, had rejected outrightly the idea of holding a secret session at that time

About

Rule 248 of the Rules of Procedure of the Lok Sabha (House of the People) enables the Lok Sabha to go into a secret sitting if there is a **request made by the Leader of the House**, in this case the Prime Minister as he is a member of the Lok Sabha.

When the Lok Sabha sits in secret, no stranger shall be permitted to sit in the galleries and the house shall sit in camera. No notes or records are also permitted to be kept of a secret sitting of the Lok Sabha.

Interestingly though, Rule 248 permits members of the Rajya Sabha to observe the session from the gallery and that other members authorised by the Speaker may be permitted to sit in the Chamber of the House.

According to sources, never in the history of Independent India a secret sitting under the rules of conduct in Parliament has been held in the Lok Sabha or the Rajya Sabha

In 1942, a secret sitting in the then central Assembly was held and since then no such sitting has had been held.

The Chhattisgarh Assembly conducted the first-ever secret sitting in the parliamentary history of India on 2007 to discuss the Naxal problem, which has emerged as the biggest internal security threat in India.

PUBLIC FINANCIAL MANAGEMENT SYSTEM (PFMS)

Why in news?

The Public Accounts Committee (PAC), in its 54th report on "Implementation of Public Financial Management System (PFMS)", stressed fiscal prudence in financial planning by incorporating scientific methods into budgeting, projecting and utilisation of funds

About

Public Financial Management System (PFMS)

The Public Financial Management System (PFMS),earlier known as **Central Plan Schemes Monitoring System (CPSMS)**, is a web-based online software application developed and implemented by the **Office of Controller General of Accounts (CGA)**.

PFMS was initially started during 2009 as a **Central Sector Scheme** of Planning Commission with the objective of tracking funds released under all Plan schemes of GoI, and real time reporting of expenditure at all levels of Programme implementation.

Subsequently in the year 2013, the scope was **enlarged to cover direct payment to beneficiaries under both Plan and non-Plan Scheme**s.

The latest enhancement in the functionalities of PFMS commenced in late 2014, wherein it has been envisaged that **digitization of accounts** shall be achieved through PFMS and the additional functionalities would be built into PFMS in different stages.

PFMS provides various stakeholders with a real time, reliable and meaningful management information system and an effective decision support system, as part of the **Digital India initiative of GoI**

Objectives of PFMS

To facilitate sound Public Financial

Management System for Government of India (GoI) by establishing an efficient fund flow system as well as a payment cum accounting network.

The enhanced application is envisaged to cater to all **Plan and Non Plan payments of GoI, all tax and non-Tax receipts** and also functions such as a **comprehensive HRMIS and self-contained pension as well as GPF modules**.

The biggest strength of PFMS is its integration with the Core banking system in the Country.

As a result, PFMS has the unique capability to push online payments to almost every beneficiary/vendor. At present, PFMS interface is having interface in addition to the Core Banking System (CBS) of all Public Sector Banks, Regional Rural Banks, major private sector banks, Reserve Bank of India, India post and Cooperative Banks.

PUBLIC ACCOUNT COMMITTEE

Public Accounts Committee was introduced in 1921 after its first mention in the Government of India Act, 1919 also called Montford Reforms. It is existing in the Indian Constitution since then.

PAC is one of the parliamentary committees that examine the annual audit reports of CAG, which the President lays before the Parliament of India. Those three reports submitted by CAG are:

1. **Audit report on appropriation accounts**

2. **Audit report on finance accounts**

3. **Audit report on public undertakings**

The Public Accounts Committee examines public expenditure. That public expenditure is not only examined from a legal and formal point of view to discover technical irregularities but also from the point of view of the economy, prudence, wisdom, and propriety. The sole purpose to do this is to bring out cases of waste, loss, corruption, extravagance, inefficiency, and nugatory expenses.

REMOTE VOTING MACHINE

Migration based disenfranchisement is indeed not an option in the age of technological advancement.

The voter turnout in General Elections 2019 was 67.4 % and the Election Commission of India is concerned about the issue of *over 30 Crore electors not exercising their franchise* and also differential voter turnout in various States/UTs. It is understood that there are multifarious reasons for a voter not opting to register in a new place of residence, thus missing out on exercising the right to vote.

Inability to vote due to internal migration (domestic migrants) is one of the prominent reasons to be addressed to improve voter turnout and ensure participative elections.

Although there is no central database available for migration within the country, the analysis of available data in public domain points to work, marriage and education related migration as important components of domestic migration.

Out-migration is predominant among the rural population in overall domestic migration. *Approximately 85% of the internal migration is within the States.*

Soon after assuming office as Chief Election Commissioner, Shri Kumar's learning of domestic migration issues first hand from his trek to Dumak village in Chamoli district, focused his attention on enabling the migrant voters to exercise their franchise from their current place of residence.

Realising such empowerment would entail a host of legal, statutory, administrative and technological interventions, ECI team has deliberated at length to find inclusive solutions to facilitate electoral participation of migrants across all socio-economic strata and explored *alternative voting methods like two-way physical transit postal ballots, proxy voting, early voting at special Early Voting Centres, one-way or two-way electronic transmission of postal ballots (ETPBS), Internet-based voting system etc.*

With the objective of finding a technological solution which is credible, accessible and acceptable to all stakeholders, the Commission headed by Chief Election Commissioner Shri Rajiv Kumar along with Election Commissioners Shri Anup Chandra Pandey and Shri Arun Goel has now explored the option of using a modified version of the time-tested model of M3 EVMs to enable voting at remote polling stations i.e., polling stations outside home constituency, for domestic migrants. The migrant voter would thus need not travel back to his/her home district to exercise his/her franchise of voting.

The Commission in association with a renowned Public Sector Undertaking is now ready to pilot a **Multi Constituency Remote Electronic Voting Machine (RVM)** for facilitating participation of domestic migrants from their remote locations itself i.e., the places of their current residence for purposes of education/ employment, etc., for voting for their home constituencies.

This modified form of *EVM can handle up to 72 multiple constituencies from a single remote polling booth.*

The initiative, if implemented, can lead to a **social transformation for the migrants and connect with their roots** as many times they are reluctant to get themselves enrolled at their place of work for various reasons such as frequently changing residences, not enough social and emotional connect with the issues of area of migration, unwillingness to get their name deleted in electoral roll of their home/native constituencies as they have permanent residence/ property etc.

The Commission has invited all Recognised 08 National and 57 State Political Parties on 16.1.2023 to demonstrate the functioning of the multiconstituency prototype Remote EVM.

The Technical Expert Committee members will also be present. The Commission has also solicited written views of recognised political parties by 31.01.2023 on various related issues including changes required in legislation, changes in administrative procedures and voting method/ RVM/technology, if any other, for the domestic migrants.

Based on the feedback received from various stakeholders and demonstration of the prototype, the Commission will appropriately carry forward the process of implementing remote voting method.

MULTI STATE COOPERATIVE SOCIETIES AMENDMENT BILL 2022

The government recently brought a new bill in Parliament to amend the Multi-State Co-operative Societies Act, 2002.

Introduced by Minister of State for Cooperation B L Verma on December 7 in the Lok Sabha, the bill is expected to be tabled for discussion before the winter session of Parliament ends on December 23.

The new amendment will bring a host of changes making it easier for cooperative societies to merge and amalgamate.

What are the multi-state co-operative societies?

Multi-State Co-Operative Societies (MSCS) are those cooperative societies that can have operations in multiple states and are registered with the Central Cooperation Registrar instead of the state registrar.

While *cooperatives like IFFCO and Amul Dairy have highlighted the success* that various members can find in cooperative societies, MSCSs have mostly been unable to recreate this kind of result.

The MSCSs were created with the intention of easing the difficulty that cooperatives had in doing operations across the country.

There are currently over 1,500 MSCSs in the country with most of the cooperatives being credit-based in nature.

Despite being legally independent, MSCSs see frequent intervention by governments through financial assistance and share capital in the name of public interest.

Due to the poor financial health of most MSCSs, including issues regarding compliance and trust, the government **recently expanded the scope of the Prevention of Money Laundering Act, 2002 in 2018.**

This was done to include MSCSs and MSCS banks under the ambit of the Reserve Bank of India.

What does the new bill propose?

Under the Multi-State Co-operative Societies (Amendment) Bill, 2022, the government is looking to shore up the previous Act.

New provisions hope to *improve transparency* in MSCSs and also make it easier to do business for co-operatives.

One of the biggest changes is the fact that the bill will allow any cooperative society to merge into an already existing MSCS.

Under the current rules, only an existing MSCS can merge with another MSCS.

Other new provisions include the *creation of a Central Co-operative Election Authority, the creation of a Co-operative Rehabilitation, Reconstruction and Development Fund*, and the mandatory appointment of a Cooperative Information Officer and a Cooperative Ombudsman in MSCS in order to improve governance and accountability.

However, the opposition alleges that *these changes would consolidate more power with the central government* over cooperative societies.

The bill for example allows the central *government to override an MSCS's board* to appoint members to the rehabilitation fund, something that can *dramatically affect the autonomy of an MSCS.*

Allowing existing co-operatives to merge into MSCSs also takes the bill into what opposition members allege is only state jurisdictions as state cooperatives are not under the ambit of the central government.

JAN VISHWAS PROVISIONS BILL 2022.

The Jan Vishwas (Amendment of Provisions) Bill, 2022, was introduced in Lok Sabha on December 22, 2022.

It amends 42 Acts to reduce the compliance burden on individuals and businesses and ensure ease of doing business.

Some Acts that are amended by the Bill include: the Indian Post Office Act, 1898, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, and the Information Technology Act, 2000.

Key provisions of the Bill include the following:

Decriminalising certain offences: Under the Bill, several offences with an imprisonment term in certain Acts have been decriminalised by imposing only a monetary penalty.

For example, under the Agricultural Produce

(Grading and Marking) Act, 1937, counterfeiting grade designation marks is punishable with imprisonment of up to three years and a fine of up to five thousand rupees.

The Bill replaces this with a penalty of eight lakh rupees. Grade designation mark indicates the quality of an article under the 1937 Act. Under the Information Technology Act, 2000, disclosing personal information in breach of a lawful contract is punishable with imprisonment of up to three years, or a fine of up to five lakh rupees, or both.

The Bill replaces this with a penalty of up to 25 lakh rupees.

In certain Acts, offences have been decriminalised by imposing a penalty instead of a fine.

For instance, under the Patents Act, 1970, a person selling a falsely represented article as patented in India is subject to a fine of up to one

lakh rupees.

The Bill replaces the fine with a penalty, which may be up to ten lakh rupees.

In case of a continuing claim, there shall be an additional penalty of one thousand rupees per day.

Revision of fines and penalties: The Bill increases the fines and penalties for various offences in the specified Acts.

Further, these fines and penalties will be increased by 10% of the minimum amount every three years.

Appointing adjudicating officers: As per the Bill, the central government may appoint one or more adjudicating officers for the purpose of determining penalties.

The adjudicating officers may: (i) summon individuals for evidence, and (ii) conduct inquiries into violations of the respected Acts.

These Acts include: the Agricultural Produce (Grading and Marking) Act, 1937, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, and the Public Liability Insurance Act, 1991.

The Bill also *specifies the appellate mechanisms* for any person aggrieved by the order passed by an adjudicating officer.

For instance, in the Environment (Protection) Act, 1986, appeals may be filed with the National Green Tribunal within 60 days from the order.

PERSONALITY RIGHTS

The Delhi High Court recently passed an interim order to prevent the unlawful use of Bollywood star Amitabh Bachchan's name, image and voice.

The court restrained people from infringing the personality rights of the actor.

Personality rights

Personality rights refer to the right of a person to protect his/her personality under the right to privacy or property. These rights are important to celebrities as their names, photographs or even voices can easily be misused in various advertisements by different companies to boost their sales.

Statutes like the Trademarks Act 1999 and the Copyright Act 1957 govern publicity rights.

It consists of two types of rights,

1. Firstly, **the right of publicity,** or the right to keep one's image and likeness from being commercially exploited without permission or contractual compensation and

2. Secondly, **the right to privacy** or the right to not have one's personality represented publicly without permission.

Ethical issues involved are,

- Consumers are often misled owing to false advertisements or endorsements. This led to a loss of trust among consumers.

- Amendment to the Consumer Protection Act of 2019 was passed to keep a check on the misleading advertisements and endorsements of consumer products by imposing a penalty on the endorser as well.

POWER OF ATTORNEY

Why in news?

The cremation of billionaire Russian lawmaker and Putin critic Pavel Antov as well as his friend Vladimir Bydanov has emerged as a central point of an investigation by Odisha *Police which is examining the authenticity of the power of*

attorney (PoA) documents purportedly issued by their family members for the funeral.

About

A power of attorney is a legal document that gives one person the power to act for another person.

- The person who receives the authority is the agent or attorney-in-fact while the subject of the POA is the principal.

- The agent can have broad legal authority or limited authority to make decisions about the principal's property, finances, or medical care.

- The POA is often used when the principal can't be present to sign necessary legal documents for a financial transaction.

- A durable power of attorney remains in effect if the principal becomes ill or disabled and cannot act personally.

- A power of attorney (PoA) is governed by the Powers of Attorney Act 1888. Generally, the registration of a Power of Attorney is not essential. However, if the PoA creates an interest in the property concerned, registration is necessary

- An individual can select multiple attorneys and also decide whether they must act separately or jointly while taking a decision.

- A Power of Attorney (PoA) *can be cancelled or revoked at any time*, as long as the grantor of PoA is mentally fit and competent. If the grantor wishes to cancel a PoA, the grantor must inform the agent in writing, duly sign the revocation letter in front of a notary public, and deliver it to the attorney-in-fact.

TRIPLE TEST ON RESERVATION

The Allahabad High Court had ordered the Uttar Pradesh Government to conduct urban local body elections without the OBC reservations as the "triple test" requirement for the quota has not been fulfilled.

Triple Test formula:

A five-judge Constitution Bench in the **K. Krishnamurthy (Dr.) v. Union of India (2010) judgment** said that barriers to political participation are not the same as barriers to education and employment. While deciding on the legality of OBC reservations in Maharashtra local body elections in March 2021, the Supreme Court set out a three-layered test – also called triple test. This is something that State governments have to follow to provide reservations-

Step 1: States must set up a *dedicated commission to examine backwardness* in local bodies.

Step 2: They must determine the size of the quota for communities on the basis of data collected by the commission.

Step 3: These reservations, combined with the Scheduled Castes and Scheduled Tribes quotas, cannot exceed 50% of the total seats in the local body.

Takeaways of K. Krishnamurthy Case

In this case, the Supreme Court had interpreted **Article 243D(6) and Article 243T(6),** which permit reservation by enactment of law for backward classes in local bodies respectively. It held that barriers to political participation are not the same as that of the barriers that limit access to education and employment. However, for creating a level playing field, reservation may be desirable as mandated by the aforementioned conditions.

Above articles provide a separate constitutional basis for reservation, as distinct from what are conceived under **Article 15 (4) and Article 16 (4)** which form the basis for reservation in education and employment.

In 2021, OBC reservations in local bodies were set aside in Odisha and Madhya Pradesh too on similar grounds by courts. Earlier this year, the Karnataka and Patna high courts have set aside notifications reserving seats for OBCs in municipal elections in Bengaluru and Bihar. In May this year, the top court, however, allowed local body polls with OBC reservation in Madhya Pradesh after it proved compliance to the triple test formula.

APPOINTMENTS IN FOURTH BRANCH INSTITUTIONS

Why in news?

There are issues in sorting out the method by which the Election Commission of India is constituted.Further there have been issues regarding the service conditions of Chief Information commissioner as well as Central Bureau of Investigation's independence

Fourth Branch Institutions

According to the classical understanding of modern democracy, there are 3 wings of state - the legislature, the executive, and the judiciary.The task of the Constitution is to allocate powers between these 3 wings, and to ensure that there is an adequate degree of checks and balances between them.

The fourth branch of the state are characterised with their distinctiveness from the executive, legislature and judiciary — these institutions are tasked with the protection of key constitutional values such as democracy, legality, impartiality, probity, human rights and price stability

In the Indian context, institutions of the fourth branch include the Election Commission, Lokpal, Central Bureau of Investigation, Reserve Bank, National Statistics Commission, National Human Rights Commission, Information Commission, commissions for various marginalised groups, Central Vigilance Commission, Comptroller & Auditor General, Attorney General, Public Service Commission, University Grants Commission, Finance Commission, Niti Aayog, media regulators and many others. Some of these institutions are constitutional; others have quasi-constitutional status.

Demands of Fourth Branch institutions

Three key demands regarding fourth branch institutions are **multi-partisan appointments, operational independence and impartiality, and accountability** to the legislature rather than the executive.

Recommendations to ensure independence of fourth branch institutions

Independent Institutions Bill for Maintaining independence of fourth branch through legislation.The Bill should require fourth branch institutions to regularly publish reports about their functioning. Based on these public reports, the Lok Sabha or vidhan sabha IIC ,as the case may be ,should question their senior staff in annual ,televised ,hearings.

Based on applications and consultations with relevant stakeholders) including existing members of that institution, MPs from the relevant state for state-level appointments, area experts and activists,(the committee formed by the recommended act should draw up a shortlist of at least two— and no more than five — names to fill up the posts.

The appointments should be for a fixed term

All institutional decisions should be made by a governing committee rather than the chief officer acting on her own. Except promotions within the institution ,appointees should not be eligible for any public office after stepping down .Salaries ,perks and staff provisions should be statutorily protected.

The urgent Need - The Case of ECI

In ,2015 a PIL was filed in SC contending that executive making appointments to ECI has degraded its independence over time.

It claimed that the current system of appointments violates Article (2)324 of the Constitution and is hence unconstitutional.

The SC in 2018 referred the PIL to a five-judge Constitution bench for authoritative adjudication.

The constitution bench mooted the idea of including the Chief Justice of India) CJI (in the committee which appoints Election Commissioner to ensure" neutrality "and

independence of the poll panel.

Way Forward

The South African and Kenyan Constitutions have dedicated constitutional provisions for fourth branch institutions and requiring them to be independent. Likewise ,India as a protector of democracy should ensure the independence and effective functioning of the fourth branch institutions.

INTERSTATE DISPUTE RESOLUTION IN INDIA

Why in news?

There have been clashes in the state borders of the north east india recently .Further, Karnataka - Maharashtra border issues are also burning up.

About

Attempts are often made to resolve inter-state disputes with the **cooperation of both sides ,with the Centre** working as a facilitator or a neutral mediator .If issues are resolved amicably ,Parliament can bring a law to alter state boundaries, such as the Bihar-Uttar Pradesh)Alteration of Boundaries(Act of 1968 and the Haryana-Uttar Pradesh) Alteration of Boundaries (Act of.1979

Other methods

There are other formal methods in the Constitution to resolve inter-state disputes.

Judicial redressal:

The Supreme Court in its **original jurisdiction** decides imputes between states .**Article 131**of the Constitution reads: ”Subject to the provisions of this Constitution ,the Supreme Court shall ,to the exclusion of any other court ,have original jurisdiction in any dispute

between the Government of India and one or more States ;or

between the Government of India and any State or States on one side and one or more other States on the other ;or

between two or more States ,if and in so far as the dispute involves any question)whether of law or fact (on which the existence or extent of a legal right depends:

Provided that the said **jurisdiction shall not extend to a dispute arising out of any treaty ,agreement, covenant ,engagements ,and or other similar instrument** which ,having been entered into or executed before the commencement of this Constitution ,continues in operation after such commencement ,or which provides that the said jurisdiction shall not extend to such a dispute.

Inter-state Council:

Article 263 of the Constitution gives powers to the President to set up an Inter-state Council for resolution of disputes between states. The Council is envisaged as a forum for discussion between the states and the Centre.

In ,1988 the Sarkaria Commission suggested that the Council should exist as a permanent body ,and in1990 it came into existence through a Presidential Order.

The provision reads: ”provisions with respect to an inter State Council If any time it appears to the President that the public interests would be served by the establishment of a Council charged with the duty of

a .nquiring into and advising upon disputes which may have arisen between States;

b. Investigating and discussing subjects in which some or all of the States ,or the Union and one or more of the States ,have a common interest ;or

c. Recommendations upon any such subject and ,in particular ,recommendations for the better co ordination of policy and action with respect to that subject ,it shall be lawful for the President by order to establish such a Council ,and to define the nature of the duties to be performed by it and its organisation and procedure.

In ,2021 the Centre reconstituted the Inter-state Council and the body now has 10 Union Ministers as

permanent invitees .The standing committee of the Council has been reconstituted with Home Minister Amit Shah as Chairman .Finance minister Nirmala Sitharaman and the Chief Ministers of Maharashtra, UP ,and Gujarat are some of the other standing committee members.

Interstate River Water Disputes Act(1956 , IRWD Act)

Using powers of the article , 262Parliament enacted the Interstate River Water Disputes Act) 1956 ,IRWD Act (to resolve the water disputes that would arise in the use ,control and distribution of an interstate river or river valley.

This act is applicable to only inter-state rivers and river valleys and only when activities of an upstream state affect the interest or downstream state or vice versa.

Further ,when the riparian states are not able to reach to an amicable agreement, section 4 of this act provides for creation of a Tribunal. The tribunal created this way has power of a Civil Court but its verdict is equivalent to the

Supreme Court verdict when pronounced in the ambit of IRWD Act .The final verdict of such tribunal when accepted by Central Government is notified in official gazette and becomes a law ,binding upon the states for implementation.

However ,verdict of the tribunal can be challenged in Supreme Court via civil suits. The IRWD act was amended in 2002to provide that :If there is any Tribunal award which predates ,2002 itcan not be altered by new tribunals

Zonal Councils

The Zonal Councils provide an excellent forum where irritants between Centre and States and **amongst State**s can be resolved through free and frank discussions and consultations .Being advisory bodies ,there is full scope for free and frank exchange of views in the meetings of Zonal Councils.

Though there are a large number of other fora like the National Development Council, Inter State Council ,Governor's/ Chief Minister's Conferences and other periodical high level conferences held under

the auspices of the Union Government ,the Zonal Councils are different ,both in content and character.

They are regional fora of cooperative Endeavour for States linked with each other economically ,politically and culturally .Being compact high level bodies ,specially meant for looking after the interests of respective zones ,they are capable of focusing attention on specific issues taking into account regional factors, while keeping the national perspective in view.

The main objectives of setting up of Zonal Council are

- Bringing out national integration;

- Arresting the growth of acute State consciousness, regionalism ,linguism and particularistic tendencies;

- Enabling the Centre and the States to co-operate and exchange ideas and experiences;

- Establishing a climate of co-operation amongst the States for successful speedy execution of development projects.

COLLEGIUM VS NJAC

Vice President Jagdeep Dhankhar commented on the on going heated debate between the Central government and the Supreme Court over the matter of judicial appoint ments.

Referring to the 2015 verdict of the SC which

struck down the National Judicial Appointments Commission (NJAC) and the 99th Amendment, Mr. Dhankhar asked how the judiciary could have run down a unanimouslypassed constitutional provi sion which

reflected "the will of people".

What was the NJAC?

In August 2014, Parliament passed the Constitution (99th Amendment) Act, along with the National Judicial Appointments Commission

(NJAC) Act, which together provided for the creation of an in dependent commission to appoint judges to the Supreme Court (SC) and High Courts (HC).

This commission was to replace the collegium system. The two Bills were ratified by the required number of State Legislatures and got the President's assent on December 31, 2014.

Articles 124 and 217 of the Constitution deal with the appointment of judges to the SC and HCs of the country.

Article 124(2) states "every Judge of the Supreme Court shall be appointed by the President" **after "consultation" with the judges of the SC and the HCs.**

So, while the collegium system itself does not figure in the Constitution, its legal basis is found in three SC judgments — usually referred to as the 'Judges Cases'.

In order to replace this system which received criticism over the years for its lack of transparency, among other provisions, the Constitution (99th Amendment) Act, introduced three primary Articles.

Article 124A which created the NJAC, a constitutional body to re place the collegium system, Article 124B which conferred the NJAC with the power to make appointments to Courts and Article 124C which accorded express authority to Parliament to make laws

regulating the manner of the NJAC's functioning.

Under the NJAC Act, the Chief Justice of India and Chief Justices of the HCs were to be recommended by the NJAC on seniority while SC and HC judges were to be recommended on the basis of ability, merit, and "other criteria specified in the regulations".

Notably, the Act empowered any two members of the NJAC to veto a recommendation if they did not agree with it. In the collegium system, senior most judges make appointments to the higher judiciary.

The Collegium system

The collegium system is the way by which judges of the Supreme Court and High Courts are appointed and transferred.

The collegium system is not rooted in the Constitution or a specific law promulgated by Parliament; it has evolved through judgments of the Supreme Court.

The Supreme Court Collegium is a five-member body, which is headed by the incumbent CJI and comprises the four other senior most judges of the court at that time.

A High Court collegium is led by the incumbent Chief Justice and two other senior most judges of that court. By its very nature, the composition of the collegium keeps changing.

Judges of the higher judiciary are appointed only through the collegium system,

and the government has a role only after names have been decided by the collegium.

Names recommended for appointment by a High Court collegium reach the government only after approval by the CJI and the Supreme Court collegium.

Sometimes the government delays making the appointments, especially in cases where the government is perceived to be unhappy with one or more judges recommended for appointment by the collegium.

Supreme Court judges have sometimes expressed anguish over such delays.

The collegium system evolved out of a series of judgments of the Supreme Court that are called the "Judges Cases".

The collegium came into being through the interpretations of the relevant provisions of the Constitution that the Supreme Court made in these Judges Cases.

Government vs Supreme Court

The court's remarks to the government came after Vice-President Jagdeep Dhankar criticised the striking down of the National Judicial Appointments Commission (NJAC) Act by a Constitution Bench in October 2015.

Mr. Dhankar, obliquely referring to the NJAC law, said the court had "undone" the will of the people expressed through the Parliament.

The court said the law on judicial appointments to the High Courts, as it stands now, is the Collegium system evolved by the Supreme Court in the Three Judges cases

Why was the NJAC challenged?

In early 2015, the Supreme Court Advocates on Record Association (SCAORA) filed a plea challenging the provisions which had by then become laws. The SCAORA contended in its petition that both the Acts were "unconstitutional" and "invalid".

It argued that the 99th Amendment which provided for the creation of the NJAC took away the "primacy of the collective opinion of the Chief Justice of India and the two senior most Judges of the Supreme Court of India" as their collective recommendation could be vetoed or "sus pended by majority of three non -judge members".

It invoked the Second Judges Case to say that CJI primacy had to be protected. It also stated that the amendment "severely" damaged the basic structure of the Constitution, of which the independence of the judiciary in appointing judges was an integral part.

The Second Judges Case of 1993 emphasised the role of the CJI in appointing judges to SC and HCs.

The role of the CJI is primal in nature because this being a topic within the judicial family, the Executive cannot have an equal say in the matter," the verdict reasoned.

The "basic structure" doctrine meanwhile refers to the idea that the Constitution could not be amended or read in a manner that destroyed the document's basic structure.

What were the arguments between the Centre and the Supreme Court?

Former Attorney General Mukul Rohatgi, for the Union government, had argued in court that the Second Judges case, invoked by the petitioners was not valid in the case of the NJAC as the "very basis" of the ruling was now gone.

The Centre also argued that the Act in no way took away the primacy of the judiciary but in fact, diluted the power of the executive as only one member, the Law Minister, was in the NJAC as opposed to three SC judges. It also said that the amendment was "perfectly consonant" with the basic structure as it strengthened the "independence of the judiciary, checks and balances and democracy".

Solicitor General Ranjit Kumar further argued that the collegium was a "failure" and worked on a system of "intra dependence", where there was "no transparency".

In October 2015, the five-judge bench of the top court hearing SCAORA's plea gave its ruling, with a 4:1 majority, that the NJAC was "unconstitutional" and violated the "basic structure of the constitution".

Significantly, the Bench admitted that all was not well even with the collegium system of "judges appointing judges", and that the time was ripe to improve the system of judicial appointments.

INTERNATIONAL RELATIONS

INTERNATIONAL LUSOPHONE FESTIVAL

Why in news?

Ministry of External Affairs (MEA) in partnership with Indian Council of Cultural Relations (ICCR) and the Goa government organized the International Lusophone Festival in Goa from 3-6 December. The festival seeks to further India's connect with the Lusophone world.

About

Lusophone

Lusophones are peoples that speak Portuguese as a native or as common second language and nations where Portuguese features prominently in society.

Comprising an estimated 270 million people spread across 10 sovereign countries and territories, thus called Lusofonia or the Lusophone world , is the community of Portuguese-speaking (Lusophone) world; these include Angola, Brazil, Cape Verde, Galicia, Guinea Bissau, Equatorial Guinea, Macau, Mozambique, Portugal, São Tomé and Príncipe, East Timor, Uruguay, Cochin, Azores, Madeira, Goa, Daman and Diu, Singapore and Malacca to various degrees.

Community of Portuguese Language Countries

The Community of Portuguese Language Countries (Comunidade dos Países de Língua Portuguesa) also known as the Lusophone Commonwealth (Comunidade Lusofona), is a multilateral forum, founded on 17 July 1996 at the 1st CPLP Heads of State & Government Summit in Lisbon.

The founding members were Angola, Brazil, Cabo Verde, Guinea Bissau, Mozambique, Portugal and Sao Tome and Principe; while Timor Leste and Equatorial Guinea joined later

India joined CPLP as an associate observer in July 2021. As part of India's engagement with CPLP, the Ministry of External Affairs celebrated the World Portuguese Language Day in Delhi on 05 May 2022, soon after joining CPLP. This festival is also part of our efforts to further this engagement.

The festival

The festival seeks to further India's connection with the Lusophone world.

Goa has had historical linkages with the Lusophone world, which has been nurtured through the presence of Portuguese cultural institutions like the Orient Foundation and the Camoes Institute, which promote Portuguese language and culture in India.

This has deepened our economic, cultural co-operation and people-to-people ties with the Community of Portuguese Language (CPLP) member countries.

As part of the festival, workshops on Lusophone music for artists and volunteers, as various workshops and exhibitions of unique Goan architecture, Goan handicrafts and Goan furniture are being organised.

The Lusophone Food and Spirits Festival will also showcase the culinary links between India and the Lusophone world.

WASSENAAR ARRANGEMENT

Why in news?

India assumed the chairmanship of the Wassenaar Arrangement (WA), a multilateral technology control agreement, on 1 January 2023, for a period of one year.

About

WA is a **multilateral export control regime**, which, through regular information exchange among members on transfers of **conventional arms and dual-use goods and technologies**, seeks to promote transparency and greater responsibility in such transfers and prevent destabilising accumulations,

The Wassenaar Arrangement came into being in 1996 and has 42 members. The WA operates on a **voluntary basis** and decisions are made by consensus.

Every six months, members exchange information on deliveries of conventional arms to non-Wassenaar members that fall under eight broad weapon categories: battle tanks, armored combat vehicles (ACVs), large-caliber artillery, military aircraft/unmanned aerial vehicles, military and attack helicopters, warships, missiles or missile systems, and small arms and light weapons

The WA maintains lists of technologies which are of interest. Tier 1 denotes a list of basic items while Tier 2 denotes Sensitive or Very Sensitive Technologies.

India joined the Wassenaar Arrangement (WA) in 2017 and became its 42nd member.

Export Control Regime Examples

	Conventional Weapons	Weapons of Mass Destruction and their delivery systems		
		Missiles	Nuclear Weapons	Chemical Weapons and Biological Weapons
Treaties			**NPT** Nuclear Non-proliferation Treaty	**BWC** Biological Weapons Convention	**CWC** Chemical Weapons Convention
International Export Control Regimes	**WA** Wassenaar Arrangement	**MTCR** Missile Technology Control Regime	**NSG** Nuclear Suppliers Group	**AG** Australia Group

ORGANISATION OF ISLAMIC COOPERATION (OIC)

Why in news?

India strongly condemned the Organisation of Islamic Cooperation (OIC) saying the organisation had "lost its credibility".

The comment from the Ministry of External Affairs (MEA) came after OIC Secretary-General Hissein Brahim Taha visited the Line of Control (LoC) from the Pakistani side and was briefed by the situation by the Pakistan military.

About

The Organisation of Islamic Cooperation (OIC) is the **second largest inter-governmental organisation** after the United Nations, with the **membership of 57 states**, covering four continents.

The OIC is the collective voice of the Muslim world to ensure and safeguard their interest on economic socio and political areas. The OIC has Institutions, which implement its programmes.

Its Headquarters is in **Jeddah, Kingdom of Saudi Arabia**.

India is not a Member of OIC.

Membership:

U. N. members with a Muslim majority can join the organisation.

The membership is to be ratified with full consensus at the OIC's Council of Foreign Ministers.

The same provisions apply for acquiring an observer status.

Quorum - All decision-making in the forum requires a quorum defined by the presence of **two-thirds of the member states** and complete consensus.

Finance - The OIC is financed **by the member states** proportionate to their national incomes

Key Bodies of OIC-

Among the OIC's key bodies: the Islamic Summit, the Council of Foreign Ministers (CFM), the General Secretariat, in addition to the Al-Quds Committee and three permanent committees concerned with science and technology, economy and trade, and information and culture.

There are also specialized organs under the banner of the OIC including the Islamic Development Bank and the Islamic Educational, Scientific and Cultural Organization, as well as subsidiary and affiliate organs that play a vital role in boosting cooperation in various fields among the OIC member states.

The OIC supports a two-state solution to the Israeli–Palestinian conflict.

India has the largest Muslim population outside of Muslim-majority or Islamic states. However, India's relationship with Pakistan, the latter being an Islamic state, has been riddled with hostilities and armed conflict since the 1947 Partition of India.

The poor relationship between the two states has had a direct impact on India–OIC relations due to Pakistan's status as a founding member of the organization.

India has pushed for the OIC to accept it as a member state, arguing that Indian Muslims comprise 11% of the world's total Muslim population; Pakistan has staunchly opposed the entry of India into the organization.

SPORTS WASHING

Why in news?

The controversy of FIFA lies not in the football that has been played but the way in which the tournament is being used by its host, Qatar, a country with a limited footballing pedigree and a troubling human rights record. The starkness of this case makes it a useful context against which to explore the relationship between sportswashing and democracy.

Qatar's human rights record has led to criticism of the decision by tournament organiser FIFA to hold the World Cup in the country. It is not the only controversial football investment involving a Gulf state in recent times.
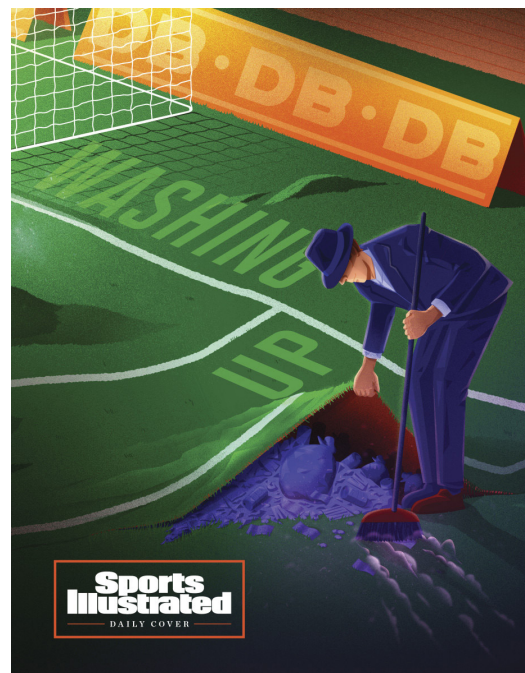
About

Sportswashing is a term used to describe the **practice** of individuals, groups, corporations, or governments using sports to **improve reputations tarnished by wrongdoing.**

A form of propaganda, sportswashing can be accomplished through hosting sporting events, purchasing or sponsoring sporting teams, or participating in a sport.

At the international level, it is believed that sportswashing has been used **to direct attention away from poor human rights records and corruption scandals.** At the individual and corporate levels, it is believed that sportswashing has been used to cover up vices, crimes, and scandals. Sportswashing is an example of reputation laundering.

As a form of reputation laundering, sportswashing works **to enhance the legitimacy of wrongdoers** and shield them from the negative consequences of their conduct. In so doing, it **can embolden a sportswasher to commit further wrongdoings** and help perpetuate weak governance.

Of course, as the build-up to the World Cup in Qatar has illustrated, high profile sportswashing often attracts a great deal of critical attention, which raises reasonable questions about the extent of the danger that it presents.

However, history suggests that such criticism tends to subside once the sport is underway - although at this early stage, it appears the World Cup in Qatar may buck this trend. Additionally, the existence of criticism does not in and of itself mean that sportswashing is not working – what sportswashers seek is a **net reputational gain.**

Internationally, **sportswashing has been described as part of a country's soft power**. Russia's hosting of the 2018 FIFA World Cup has been cited as an example, as the country's global reputation was low due to its foreign policy and the event changed the focus of discussions to the success of the World Cup

MUTUAL LEGAL ASSISTANCE TREATY (MLAT)

Recently, India and Saudi Arabia discussed signing a Mutual Legal Assistance Treaty (MLAT) to obtain formal assistance from each other in investigations related to criminal cases.

It is a mechanism whereby countries cooperate with one another to provide and obtain formal assistance in the prevention, suppression, investigation and prosecution of crime to ensure that the criminals do not escape or sabotage the due process of law for want of evidence available in different countries. The Ministry of Home Affairs is the Central Authority of India for dealing with requests for mutual legal assistance in criminal matters.

Benefits of Treaty:

It will enhance effectiveness of both the countries in investigation and prosecution of crime, through cooperation and mutual legal assistance in criminal matters. It will provide a broad legal framework for bilateral cooperation with Poland in investigation and prosecution of crime as well as in tracing, restrain and confiscation of proceeds and instruments of crime as well as the funds meant to finance terrorist acts. It will be instrumental in gaining better inputs and insights in the modus operandi of organized criminals and terrorists. These in turn can be used to fine tune policy decisions in the field of internal security.

Section 105of the Criminal Procedure Code (CrPC) explains the reciprocal arrangements to be made by the Central Government with the Foreign Governments with regard to the service of summons/warrants/judicial processes. India has so far signed MLATs with 45 countries.

IRAN REMOVED FROM U.N. WOMEN'S RIGHTS BODY

India has **abstained in the U.N. Economic and Social Council** on a draft resolution to oust Iran from its principal global intergovernmental body (Commission on the Status of Women) dedicated to the promotion of gender equality and women empowerment.

Commission on the Status of Women (CSW)

It is the principal global intergovernmental body exclusively dedicated to the promotion of gender equality and the empowerment of women. By the ECOSOC resolution of June 1946, it was established as a functional commission of the Economic and Social Council (ECOSOC). The Commission comprises 45 Member States of the United Nations. India will be a member of the prestigious body for four years from 2021 to 2025.

The draft resolution, introduced by the U.S., on the removal of Iran from the membership of the CSW for the remainder of its 2022-2026 term, citing its oppression of women and girls in the country. Iran has been rocked by protests since the September 2022 death of 22-year-old Mahsa Amini, who died after being detained by the country's morality police.

The resolution was adopted by a recorded vote of 29 in favour to 8 against - Bolivia, China, Kazakhstan, Nicaragua, Nigeria, Oman, Russia, Zimbabwe and 16 abstentions, including by Bangladesh, India, Indonesia, Mauritius, Mexico, and Thailand.

UN Economic and Social Council:

Established by the UN Charter in 1945, it is the principal body for coordination, policy review, policy dialogue and recommendations on economic, social and environmental issues, as well as implementation of internationally agreed development goals. It has 54 members, elected by the UN General Assembly for overlapping three-year terms. It is the UN's central platform for reflection, debate and innovative thinking on sustainable development. Each year, ECOSOC structures its work around an annual theme of global importance to sustainable development. It coordinates the work of the 14 UN specialized agencies, ten functional commissions and five regional commissions, receives reports from nine UN funds and programmes and issues policy recommendations to the UN system and to member states.

Few Important Bodies under the Purview of ECOSOC:

- International labour Organization (ILO)
- Food and Agriculture Organization (FAO)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- World Health Organization (WHO)
- Bretton Woods Twins (World Bank Group and International Monetary Fund)
- United Nations Children's Fund (UNICEF)

SOCIETY & SOCIAL JUSTICE

What's Inside?

HOOCH TRAGEDY

Why in news?

Recently, the Bihar government has constituted a Special Investigation Team (SIT) to probe deaths due to consumption of spurious liquor in Saran district which took 82 lives as of now.

About

Spurious liquor

Country liquor is made by fermenting either jaggery or other kinds of fruit extracts and even rice that is then mixed with yeast and water. The fermentation could take between a few days to weeks to make. To keep up with demand, small bootleggers resort to the **addition of methanol** which not just helps in speeding up the process, but also adds some additional 'buzz'.

Country liquor can be categorised as spurious liquor or hooch when the amount of methane added could turn fatal. Excess methane when injected into the body, metabolises to form **formaldehyde** which then turns into formic acid that could turn fatal.
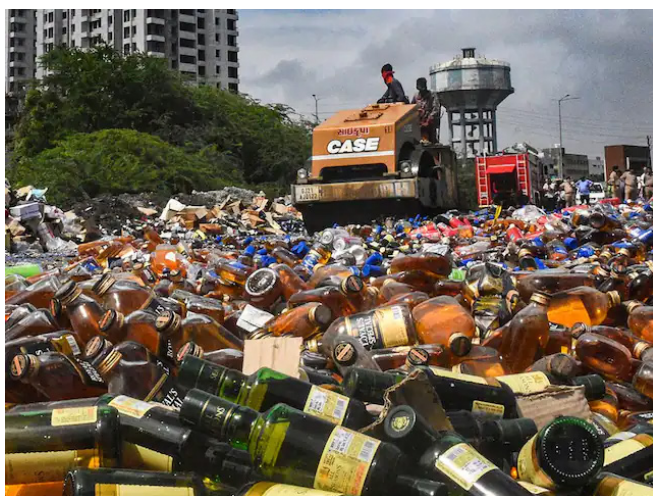
History of hooch tragedies

The number of hooch-related deaths has been on a rise in the country. According to a report by ABP live, 3 people on average die every single day due to spurious liquor poisoning in the country. Recently, the Lok Sabha released a detailed report of the top 5 states that reported the most number of deaths due to consumption of illegal and spurious liquor in the year 2016 to 2020 with Bihar and Chhattisgarh topping the list. According to the data, over 6,000 deaths were reported between 2016 and 2020 due to the consumption of spurious liquor with the lowest number of deaths in 2020 at 947.

Legislations on prohibition

Prohibition is the act or practice of forbidding something by law, more particularly the term refers to the banning of the manufacture, storage (whether in barrels or in bottles), transportation, sale, possession, and consumption of alcoholic beverages.Alcohol prohibition in India is in force in the states of Bihar, Gujarat, Mizoram, and Nagaland through .Bombay Prohibition Act, 1949: Gujarat Prohibition Act, 1949 and Bihar Prohibition Act, 2016. All other Indian states and union territories permit the sale of alcohol.

Andhra Pradesh, Haryana, Kerala, Manipur, Mizoram and Tamil Nadu have previously enforced, but later repealed prohibition.

Dry days are specific days when the sale of alcohol is not allowed. Most of the Indian states observe these days on major national festivals/ occasions such as Republic Day (26 January), Independence Day (15 August) and Gandhi Jayanti (2 October).Dry days are also observed during elections in India.

SOCIAL PROGRESS INDEX (SPI)

Why in news?

Recently, the Social Progress Index (SPI) for States and Districts of India was released by the Economic Advisory Council to the Prime Minister (EAC-PM).

About

Social Progress Index (SPI) for States and Districts made by the **Institute for Competitiveness and Social Progress Imperative** was submitted to **Economic Advisory Council- Prime Minister** and released

SPI is a comprehensive tool that can serve as **a holistic measure of a country's social progress at the national and sub-national levels**.

The index assesses states and districts based on 12 components across three critical dimensions of social progress - **Basic Human Needs, Foundations of Wellbeing, and Opportunity**. The index uses an extensive framework comprising 89 indicators at the state level and 49 at the district level.

Based on the SPI scores, states and districts have been ranked under six tiers of social progress. The tiers are

Tier 1: Very High Social Progress.

Tier 2: High Social Progress.

Tier 3: Upper Middle Social Progress.

Tier 4: Lower Middle Social Progress.

Tier 5: Low Social Progress and

Tier 6: Very Low Social Progress.

Rankings

Puducherry has the highest SPI score of 65.99 in the country, attributable to its remarkable performance across components like Personal Freedom and Choice, Shelter, and Water and Sanitation. **Lakshadweep and Goa** closely follow it with scores of 65.89 and 65.53, respectively.

Jharkhand and Bihar scored the lowest, 43.95 and 44.47, respectively.

Tamil Nadu has achieved the highest component score of 72.00 for the Opportunity dimension. Within this dimension, Andaman and Nicobar Islands have the highest component score for Personal Rights, while Sikkim has topped the list for Inclusiveness. It is commendable to witness Puducherry attaining the highest scores across two components in this dimension, i.e., Personal Freedom and Choice and Access to Advanced Education.

TRIBAL DEVELOPMENT REPORT 2022

The **Bharat Rural Livelihood Foundation** (BRLF) launched the Tribal Development Report 2022.

The report stated that even though it's been 75 years since our independence, the Tribal communities are at the bottom of development in the country.

It says tribal communities have been pushed away from the fertile lands and live in harsh regions across the country.

People now acquire the lands where tribal resided for urban development or mining and infrastructure projects.

On the other hand, tribal people are left in

their condition, which is eventually degrading daily. These projects are degrading the resources used by the tribal community and have deepened the division between mainstream society and tribal groups.

There are various constitutional provisions relating to tribal communities- which are termed "Scheduled Tribes" in our constitution- under the Government of India, such as:

Various fundamental rights, such as Article 15(4) and Article 29, provide special provisions for the protection and advancement of STs.

Article 46 protects STs and SCs from social injustice and takes care of their educational and

economic development.

Articles 330, 332 and 243 reserve seats for STs in Lok Sabha, State Legislatures and Panchayats, respectively.

Under Article 275, special funds are provided by the Union government to the state governments for the development and welfare of tribal groups.

Issues faced by tribal communities in their day-to-day life:

The development comes with knowledge, which comes from education. There exist various factors which contribute to the increasing difficulty of children to attend schools in tribal areas. Due to the remoteness of tribal villages, there is a lack of schooling facilities. Poverty leads to children dropping out of school and doing work to support their families.

The status of women in tribal areas is eventually degrading with the destruction of resources. The health and nutrition of women residing in tribal areas are declining, and they are also forced to live in harsh situations where they work in harsh conditions to earn money.

Developmental projects, on the one hand, are increasing the welfare and standard of living of urban society, but on the other hand, are working as destruction for the tribal people. The construction of industries, national parks, wildlife sanctuaries and dams is causing mass displacement of tribal communities.

Tribal communities are socially excluded from society and hence face isolation and social discrimination. Development activities launched in tribal areas work as a form of intrusion for them, leading to their migration to another place. Adjusting to an entirely new home causes difficulty and psychological illness among them.

Tribal populations do not get proper nutrition and health facilities, making them prone to various diseases. They have an insecure livelihood and are malnourished.

WORLD AIDS DAY

'Undetectable AIDS is untransmittable'; thus, each new HIV case is a missed opportunity. The theme of World AIDS Day 2022 is 'Equalize'.

About AIDS

Antiretroviral therapy (ART) can result in an undetectable viral load for those PLHIV on treatment within just a couple of months.

In the world, As of 2021, 38.4 million people were living with HIV, out of which 1.7 million were children and 54% of all were women and girls.

In 2021, as per the Joint United Nations Programme on HIV/AIDS (UNAIDS) 6,50,000 people died of AIDS-related diseases and 5 million people became newly infected– 4,000 new infections every day.

In India, according to UNAIDS, an estimated 2.4 million people were living with HIV in 2021 (including 70,000 children).

Out of these 77 per cent knew their HIV status; 65 per cent were on life-saving antiretroviral therapy; and 55 per cent had suppressed viral load.

63,000 people were newly infected with HIV in 2021 in India – 173 new infections every day or seven infections every hour.

There were 42,000 AIDS-related deaths in 2021 (5 deaths every hour)

Factors like lack of accountability, sub-optimal programme effectiveness, and complacency are slowing us down from reaching the goal of an AIDS-free world by 2030.

Measures to be taken such as science-backed tools and approaches to prevent HIV (human immunodeficiency virus) transmission, or diagnosing and treating persons living with HIV (PLHIV) so that they can live healthy lives.

NATIONAL POLICY OF RARE DISEASES (NPRD)

Why in news?

Rajya Sabha member from the Nationalist Congress Party Fauzia Khan raised concerns over the benefits of the National Policy of Rare Diseases (NPRD) not reaching patients even after several months since its introduction.

About

MP alleged that the "unending delay and lack of urgency" on the part of the Centres of Excellence (CoE) , designated as per the policy, has claimed several young lives and endangered the survival prospects of 415 patients, largely children, diagnosed with rare diseases.

These diseases included **Lysosomal storage disorders, Gaucher disease, Pompe disease**, MPS 1 and 2 and **Fabry disease**.

Rare disease

A rare disease is a health condition of **low prevalence** that affects a small number of people compared with other prevalent diseases in the general population. It is estimated that globally around 6000 to 8000 rare diseases exist with new rare diseases being reported in the medical literature regularly. However, 80%of all rare disease patients are affected by approximately 350 rare diseases.

They include autoimmune disorders, congenital malformations, inherited cancers, and certain endemic infectious diseases that have very low prevalence.Around 80 percent of rare diseases are genetic in origin and therefore disproportionately impact children.

Only 5 percent of rare diseases worldwide are treatable.

A vast majority do not have specific targeted treatment, and patients often receive functional therapies to alleviate symptoms.

Some also require lifelong administration of antidotes and supportive medication, which results in high direct and indirect costs compared to other diseases

Indeed, rare diseases are neglected to an extent that drugs used for their treatment are called **'orphan drugs**

There is no universally accepted definition of a rare disease. Different countries define rare diseases differently. However, the common considerations in the definitions are primarily, disease prevalence and to varying extent severity and existence of alternative therapeutic options.

India faces the limitation of lack of epidemiological data to be able to define rare diseases in terms of prevalence or prevalence rate, which has been used by other countries. To overcome this, a hospital based National Registry for Rare Diseases has been initiated by ICMR by involving centers across the country that are involved in diagnosis and management of Rare Diseases. This will yield much needed epidemiological data for rare diseases

The Aims of the National Rare diseases policy

To **lower the high cost of treatment** for rare diseases with increased focus on indigenous research with the help of a National Consortium to be set up with Department of Health Research, Ministry of Health & Family Welfare as convenor.

Increased focus of **research and development** and local production of medicines

Creation of a **national hospital based registry** of rare diseases

Early screening and prevention through primary and secondary health care infrastructure such as Health and Wellness Centres and District Early Intervention Centres (DEICs) and through counselling for the high-risk parents.

To strengthen t**ertiary health care facibtie**s for prevention and treatment of rare diseases

Designating **8 health facilities as Centre of Excellence** and these CoEs will also be provided

one-time financial support of up to Rs 5 crores for upgradation of diagnostics facilities.

Categorization of rare diseases

The rare diseases have been identified and categorized into 3 groups namely Group 1, Group 2 and Group 3.

Group 1: Disorders amenable to one-time curative treatment.

Group-2: Diseases requiring long term/ lifelong treatment having relatively lower cost of treatment and benefit has been documented in literature and annual or more frequent surveillance is required.

Group 3:- Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.

A provision for financial support up to Rs. 20 lakhs under the Umbrella Scheme of **Rastriya Arogya Nidhi** is proposed for treatment, of those rare diseases that require a one-time treatment (diseases listed under Group 1 in the rare disease policy). Beneficiaries for such financial assistance would not be limited to BPL families, but the benefit will be extended to about 40% of the population, who are eligible under Pradhan Mantri Jan Arogya Yojana.

Besides, the Policy also envisages a crowd funding mechanism in which corporates and individuals will be encouraged to extend financial support through a robust IT platform for treatment of rare diseases. Funds so collected will be utilized by Centres of Excellence for treatment of all three categories of rare diseases as first charge and then the balance financial resources could also be used for research.

Nidan Kendras:

Nidan Kendras have been set up by Department of Biotechnology (DBT) under **Unique Methods of Management and treatment of Inherited Disorders (UMMID) project** for genetic testing and counseling services. These Nidan Kendras will be performing screening, genetic testing and counseling for rare diseases. Nidan Kendras possessing the facility for treatment may do so under the guidance and supervision of a CoE.

SEXUAL HARASSMENT OF WOMEN AT WORKPLACE (PREVENTION, PROHIBITION AND REDRESSAL) ACT, 2013

The **National Commission for Women (NCW)** has asked all States to ensure strict implementation of the sexual harassment at workplace law. The NCW has asked all States to ensure strict implementation of the sexual harassment at workplace law.

Crimes that women were subjected to: Domestic violence, Harassment of married women or dowry harassment, Sexual harasment at workplace, Rape and attempt to rape, Cyber crimes.

Protection of Women Against Sexual Harassment Act, 2013

The Supreme Court in a landmark judgement in the Vishakha and others v State of Rajasthan 1997 case gave **'Vishakha guidelines.** These guidelines formed the basis for the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 ("Sexual Harassment Act").

The Act defines sexual harassment at the workplace and creates a mechanism for redressal of complaints. Every employer is required to constitute an **Internal Complaints Committee at** each office or branch with 10 or more employees. The Complaints Committees have the **powers of civil courts** for gathering evidence. The Complaints Committees are required to provide for conciliation before initiating an inquiry if requested by the complainant. Penalties have been prescribed for employers. Non-compliance with

the provisions of the Act shall be punishable with a fine. Repeated violations may lead to higher penalties and cancellation of license or registration to conduct business.

The State Government will notify the District Officer in *every district, who will constitute a Local Complaints Committee (LCC)* so as to enable women in the unorganised sector or small establishments to work in an environment free of sexual harassment.

National Commission for Women (NCW):

It is a statutory body of the Government of India that was founded on January 31, 1992, by the National Commission for Women Act, 1990. Its mandate is to review the Constitutional and Legal safeguards for women; Recommend remedial legislative measures; Facilitate redressal of grievances and Advise the Government on all policy matters affecting women.

Functions:

1. Investigate and examine all issues concerning the protection provided to women under the Constitution and other legislation;

2. Report on the effectiveness of those safeguards to the Central Government; Make recommendations in such reports for the effective application of those protections;

3. Propose corrective legislative actions to address any flaws in laws;

4. Investigate complaints and take suo moto action in cases involving the denial of women's rights.

SEED SCHEME

The parliamentary panel on Social Justice and Empowerment has pulled up the Union government over the "very slow" process to categorise over 260 denotified, nomadic and semi-nomadic tribes under the SC/ST/OBC lists. Government officials have pointed out that this has delayed the approval of benefits under the SEED (Scheme for Economic Empowerment of DNTs) launched in February this year.

The scheme was launched by Union Social Justice Minister Virendra Kumar, with the aim of providing free competitive exam coaching, health insurance, housing assistance, and livelihood initiatives. An amount of ₹200 crore has been allocated for this scheme — to be spent over five years from 2021-22 to 2025-26.

The term 'De-notified Tribes' stands for all those communities which were once notified under the Criminal Tribes Acts, enforced by the British Raj between l87l and I947. These Acts were repealed after Independence in l952, and these communities were "De-Notified". The DNTs (of whom most are the medieval period Banjaras) are the most neglected, marginalized, and economically and socially deprived communities.

Most of them have been living a life of destitution for generations and still continue to do so with an uncertain and gloomy future.

SEED Scheme

Under the scheme, the government seeks to provide free coaching to students for civil services examinations, competitive exams for admission to professional courses; health insurance; livelihood support and housing. It has been formulated for families having income from all sources of Rs.2.50 lakh or less per annum and not availing any such benefits from similar Scheme of Centre Government or the State Government.

The Scheme will be implemented through a portal, developed by the Department of Social Justice & Empowerment. Post verification, the funds will be transferred directly to the beneficiaries in their account. The other implementing agencies are Ministry of Rural Development, National Rural Livelihood Mission (NRLM) and National Health Authority (NHA).

Components of the scheme

The Scheme will have the following four components:

[I] Free Coaching

A component of free Coaching for DNT Students has been envisioned for the educational empowerment of these communities. The objective of this component is to enable them to appear in competitive examinations/ admission to professional courses like medicine, engineering, MBA, etc for obtaining an appropriate job in the Public/Private Sector. The selection of the candidates for each course will be based on system generated merit list through the portal.

[II] Health Insurance

Members of these communities are likely to have little or no access to medical facilities and other benefits available under the mainstream health policies. The primary objective of the scheme is to provide financial assistance to National Health Authority (NHA) in association with State Health Agencies (SHAs). These agencies will provide a health insurance cover of **Rs.5 lakhs per family per year for families as per norms of "Ayushman Bharat Pradhan Mantri Jan Arogya Yojana.**

[III] Livelihood Initiatives

The decline of traditional occupations of DNT/NT/SNT communities has exacerbated their poverty. A focus to support livelihood generation for these communities is required. The primary objective of the scheme is to provide financial assistance to National Rural Livelihood Mission (NRLM). It would enhance productivity growth in key livelihood sectors for employment generation through investments in institutional support, technical assistance.

[IV] Financial support for Housing

Considering the shortage of houses for DNTs, it has been proposed to earmark a separate outlay for PMAY to support specific importance in providing houses only for DNTs living in rural areas. It is for those who have *not taken benefit of the Pradhan Mantri Awas Yojana* as SC, ST, OBC and are living below the poverty line. The admissible support is Rs 1.20 lakhs in plains and 1.30 lakhs in hilly areas (per unit assistance).

Economic Development & Agriculture

MAKE IN INDIA

EAC-PM

Economic Advisory Council to the Prime Minister (EAC-PM) is an *independent body constituted to give advice on economic and related issues* to the Government of India, specifically to the Prime Minister.

The Terms of Reference of EAC-PM include analyzing any issue, economic or otherwise, referred to it by the Prime Minister and advising him thereon, addressing issues of macroeconomic importance and presenting views thereon to the Prime Minister. These could be either suo-motu or on reference from the Prime Minister or anyone else. They also include attending to any other task as may be desired by the Prime Minister from time to time.

BUYBACK

Why in news?

The board of markets regulator Securities and Exchange Board of India (SEBI) has approved the gradual phasing out of share buyback by companies through the stock exchanges route.

About

The board also approved the increase in minimum utilisation of the amount earmarked for a buyback through stock exchanges from the existing 50% to 75%.

For buyback via tender offers, the SEBI board approved the reduction in timeline for completion of buyback by 18 days, by removing the requirement of filing of draft letters of offer with SEBI and waiting for observations thereafter.

Buyback

A buyback, also known as a **share repurchase**, is when a company buys its own outstanding shares to reduce the number of shares available on the open market.

Companies buy back shares for a number of reasons, such as to **increase the value of remaining shares** available by **reducing the supply** or to prevent other shareholders from taking a controlling stake.

A repurchase reduces the number of shares outstanding, thereby **inflating (positive) earnings per share** and, often, the value of the stock.

The stock's earnings per share (EPS) thus increases while the **price-to-earnings ratio (P/E) decreases** or the stock price increases.

Stock exchange route

Under the stock exchange route, a company can buy back shares only on the stock exchanges having nationwide trading terminals. The buyback of shares is made only through the **order-matching mechanism**. In this method, the promoters, or persons in control of a company are not allowed to participate.

As per the recommendations of the **Keki Mistry-headed committee**, set up by Sebi to review the buyback regulations, under the stock exchange route, there is a possibility of one shareholder's entire trade getting matched with the purchase order placed by the company, thus depriving other shareholders of availing the benefit of buyback. This runs contrary to the principle of equitable treatment, which forms the basis of all corporate actions.

Tender offer Route

A tender offer means an offer by a company to buy back its own shares or other specified securities through a letter of offer from the holders of the shares or other specified securities of the company.

The buyback is done on a proportionate basis as per the buyback ratio, and the additional shares tendered over and above the prescribed buyback ratio get accepted if there are any unaccepted shares. It is a fixed-price buyback offer.

DIGIYATRA

The Ministry of Civil Aviation (MOCA) and Digi Yatra Foundation created the Digi Yatra app to provide contactless passenger identification at airports. The app allows users to board flights faster at airports and save time while travelling.

How does the Digi Yatra app work?

Digi Yatra uses a facial recognition system (FRS) to verify identity of the travellers. It takes lesser time to get through, airport entrance, pre-security check, and boarding gates.

How to get the app

The Digi Yatra app is a free app available for both Android and iOS phones and can be downloaded on any smartphone with Google Play Store for Android and App Store for iPhones.

The app allows for contactless identification, which cuts down on time spent at security checks, boarding gates, and airport entry points.

Passengers can obtain Digi Yatra ID by sharing information such as their name, email address, mobile number, and specifics of an identification (Aadhaar, driving license, voter ID etc.).

A Digi Yatra ID will be generated after this information is entered; it must be shared when purchasing tickets. The departing airport will receive this ID and the passenger data from the airlines.

Digi Yatra enabled airports and airlines

Airports

Digi Yatra app that intends to provide a seamless entry and embarkation process is operational in 3 airports for passengers taking domestic flights as of now. These include-

1. Indira Gandhi International (IGI) Airport, Delhi

2. Lal Bahadur Shastri International Airport, Varanasi

3. Kempegowda International Airport, Bengaluru

By March 2023, four more cities will be added: Hyderabad, Kolkata, Pune, and Vijayawada. Subsequently, the technology will be rolled out more widely.

Airlines

At present, Air India, Vistara and IndiGo are part of DigiYatra. GoFirst and Spicejet are also looking forward to join the gateway soon.

How to use Digi Yatra facility?

If the passenger has opted for Aadhaar-based verification, the identity will be verified online. However, if the passenger has selected other identity card, the verification will be done manually by security personnel at the airport.

Scan the barcoded boarding pass at the airport e-gate; the facial recognition system there will verify your identity and the travel document. After that, passenger can enter and proceed as usual to get through security

TRENDS IN AGRICULTURE AND FARMING TECHNOLOGY

Context

Technology plays a huge part in agriculture. Some agriculture technologies like drones, telematics, crop sensors, and precision farming are helping farmers increase productivity on their land. Then, it seems like these land technologies are already a staple on many farms.

Its contribution in the GDP has reduced to less than about 20% and in agricultural production contribution of other sectors increased at a faster rate. This has made us self-sufficient and taken us from being a food after independence to a net exporter of agriculture products.

Technology in the agriculture sector affects many inputs such as fertilizers, pesticides, and seed technology, etc. Genetic engineering techniques and biotechnology have resulted in pest resistance and increased crop yields.

Importance of technology in agribusiness

Newly developed technologies are focus on robotics, precision agriculture, artificial intelligence, and more. Some technological advancement that has innovated the agriculture sector;

At one end of the spectrum, there are states like Gujarat that are showing strong growth of 8 to 10% per annum in agriculture, while at the other end are states like Uttar Pradesh, West Bengal, etc., that are growing barely at 1 to 2.5% per annum.

Important future trends in agriculture

Vertical farming is defined as a type of farm where crops are grown on vertically stacked structures, and it can be a staple for the future of the agriculture sector. With the population expected to boom, the ability for vertical farms to take up less room than a traditional farm can make them more popular. They used a tiny amount of water compared to the great outdoors. There are plenty of clues in the farms that can help us predict the future of the agriculture sector.

Increased Use of Aerial Imaging – More growers will turn to aerial imaging to better manage their crops. Drone technology and satellite imaging allow farmers to see crop variations. Farmers will be able to manage their crops more accurately, allowing for increased profits by using aerial imaging.

Regenerative Agriculture – Due to concerns about climate change effects and weather volatility, consumers are pushing organizations and individuals to adopt regenerative agriculture systems. Then, this refers to practices that increase soil carbon sequestration like reduced tillage and the use of cover crops. While professionals debate whether the regenerative agriculture sector will be a solution for climate change mitigation, growers agree these systems increase soil health and fertility.

Accurate Yield Predictions – Some agriculture systems will allow farmers to quickly predict yields before crops are harvested. Growers will be able to find buyers for all of their harvest, eliminating food waste and increasing profits. Also, the yield monitoring method will help inform the year's variety selection and yield.

Modern Greenhouses – It has been transforming from small-scale facilities to large-scale facilities. With the tremendous recent developments in technology, the agriculture industry is witnessing a blossoming like no time before. Modern greenhouse systems are emerging increasingly in large-scale industries. As the market has grown dramatically, it has experienced clear trends in recent years. Modern greenhouses are increasing day by day.

Diversification of Agriculture – Agriculture is not only meeting the food

grains demand but also other needs of growth. Agricultural has been diversified to produce commercial crops and horticultural crops and

floricultural products like flowers, and orchids, etc., dairy and other animal husbandry products. Also, the demand for these products has been increasing. Liberalization of the economy has created ample scope for the agricultural sector's growth in terms of increased production and trade.

Data Integration – Data management software will allow growers to leverage this data to inform their decision-making. Also, this data can be used in real-time to make adjustments such as altering planting depth based on available moisture.

Increasing Trend in Horticultural Output – The diversity of climate conditions and soil characteristics enables the growth of a large variety of horticultural crops which includes fruits, vegetables, spices, cashew-nut, coconut,

cocoa, root, and tuber crops, areca-nut, medicinal and aromatic plants, etc. With the increase in the production of fruits, vegetables, and other types of horticultural products, the value of exports of these products is also increasing.

Livestock Farming Technology – Livestock farming technology involves the business of poultry farms, dairy farms, cattle ranches, or other livestock-related agribusinesses. This method can come in the form of nutritional technologies, genetics, digital technology, and more. Sensor and data technologies have many advantages for the current livestock industry. It can improve the productivity of livestock by carefully detecting sick animals and intelligently recognizing room for improvement. Computer vision mainly allows us to have all sorts of unbiased data that will get summarized into meaningful, actionable insights.

Augmenting Hybridization – The use of hybrid seeds enables better adaptation in unfavorable soil and climatic conditions like saline soils and rain-fed ecosystems.

Precision Agriculture – Temporal variability of the field leading to the field areas with common characteristics and these are called management zones. Management zones can also be used to apply the appropriate inputs to achieve the best management to increase profitability and reduce environmental impact. The precision agriculture method has been extremely popular in the past few years.

Farm Automation – Farm automation is also associated with "smart farming". It makes farms more efficient in the crop or livestock production cycle. Robotics working companies are increasingly developing some techniques like drones, autonomous tractors, robotic harvesters, automatic watering, and seeding robots.

Agricultural Exports – Another important future trend of agriculture under liberalization is the increasing volume of agricultural exports and its increasing prospects in near future under the World Trade Organization regime. India is placed in respect of agricultural exports as the agricultural sector is subjected to low import content, low cost of labor, favorable climatic conditions, and low unit cost of inputs. Agricultural exports

are playing an important role in expanding the agricultural sector activities along with generating an increasing number of employment opportunities and also in diversifying agricultural operations.

Drone Farming – Drones are used in farming to provide more frequent, cost-effective remote monitoring of crops and livestock. The use of drones in the agriculture sector is an effective approach to sustainable agricultural management that allows farmers to help streamline their operations to gain effective insights into their crops. The technology can be effective following natural disasters, such as a flood, to help growers to assess damage across terrains that could not be readily accessible on foot.

GEOGRAPHY, ENVIRONMENT, BIODIVERSITY AND DISASTER MANAGEMENT

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ETC

WILDLIFE TRUST OF INDIA AWARD

Why in news?

An eight-member team from Chinnakkanal that comes under the Munnar forest division, which has been instrumental in bringing down the incidents of man-animal conflict in the region, has won recognition for its efforts. Taking note of its contributions in mitigating man-animal conflicts as well as in ensuring the protection of wild elephants over the past eight months, the Wildlife Trust of India has selected the team for its award this year.

Wildlife Trust of India

Wildlife Trust of India (WTI) is a **non-profit conservation organization** with a vision to protect India's natural heritage.

Since its establishment in 1998, WTI has been working for (1) recovering endangered species; (2) addressing wildlife emergencies and the rescue and rehabilitation of wild animals; (3) empowering and assisting enforcement agencies in fighting wildlife crime; (4) securing wild habitats; (5) spreading conservation-awareness; (6) supporting green livelihoods; and (7) supporting grass-root conservation initiatives.

The organization currently focuses on endangered animals and their habitats. WTI has grown in to one of the top wildlife conservation organizations in India; its 140-plus workforce includes conservationists, veterinarians, wildlife biologists, sociologists, managers, etc.

Projects under WTI

Turning **whale shark** hunters into staunch protectors in Gujarat.

Relocating distressed **Hoolock gibbons** in Arunachal.

Restoring **mangrove forests** in Kerala.

Preventing **elephant** deaths due to train-hits in Uttarakhand.

Hand-raising **rhino calves** in Assam.

Satellite-tagging **critically endangered gharials** in Bihar.

Helping bring **Manas National Park** back from the brink.

Developing a comprehensive wildlife management plan for Odisha.

Training frontline forest personnel across 14 states. Mapping and securing wildlife corridors across the country. Wildlife Trust of India (WTI) currently runs 44 projects across India.

Man-Animal Conflict

Human-wildlife conflict is when encounters between humans and wildlife lead to negative results, such as loss of property, livelihoods, and even life. Defensive and retaliatory killing may eventually drive these species to extinction. These encounters not only result in suffering for both people and wildlife immediately impacted by the conflict; they can also have a global reach, with

Wildlife Trust of India
www.wti.org.in

groups such as sustainable development agencies and businesses feeling its residual effects.

Indian Elephant

There are three subspecies of Asian elephant which are the Indian, Sumatran and Sri Lankan. The Indian subspecies has the widest range and accounts for most of the remaining elephants on the continent. The leader of an elephant group is a female. The maximum gestation period can be 22 months.

Protection Status:

IUCN Red List: Endangered

CITES: Appendix I

Wildlife Protection Act 1972: Schedule I

ERRA MATTI DIBBALU

Why in news?

Geologists have said that the coastal red sand dunes of Vizag, have much significance geologically, archaeologically, and anthropologically and it needs to be protected.

About

The city of Visakhapatnam is blessed with a number of sites that have geological importance. One among them is the **coastal red sand dunes**, popularly known as 'Erra Matti Dibbalu'.

This site was declared as a **geo-heritage site** by the Geological Survey of India (GSI) in 2014 and the Andhra Pradesh government has listed it under the category of 'protected sites' in 2016.

The uniqueness of this site is that the red sediments are a part of the **continuation of the evolution of the earth** and represent the **late quaternary geologic age**. With a height of up to 30 m, they exhibit **badland topography** with different geomorphic landforms and features, including gullies, sand dunes, buried channels, beach ridges, paired terraces, the valley in the valley, wave-cut terrace, knick point and waterfalls.

The top light-yellow sand unit, which is estimated to have been deposited around 3,000 years ago, could not attain the red colouration as the sediments were geochemically unaltered. These sediments are unfossiliferous and deposited over the khondalite basement. The dunes consist of light yellow sand dunes at the top followed by a brick red sand unit, a reddish brown concretion bearing sand unit with yellow sand at the bottom.

It is a **lively scientific evolution site**, which depicts the real-time effects of climate change. About 18,500 years ago, the sea (Bay of Bengal) was at least 5 km behind from the present coastline. Since then it has been undergoing continuous active changes till about 3,000 years ago and still the changes are on

Other such sites

Such sand deposits are rare and have been reported only from three places in the tropical regions in south Asia such as **Teri Sands in Tamil Nadu**, **Erra Matti Dibbalu in Visakhapatnam** and

one more site in **Sri Lanka.** They do not occur in equatorial regions or temperate regions due to many scientific reasons

TUNGARESHWAR WILDLIFE SANCTUARY

Why in news?

The Supreme Court (SC) December 1, 2022, exempted Maharashtra's Tungareshwar Wildlife Sanctuary (TWS) from its June 3 order mandating the creation of a one-kilometre eco-sensitive zone (ESZ) around all Protected Areas in India.

About

Tungareshwar wildlife sanctuary

Tungareshwar wildlife sanctuary also known as Tungareshwar National Park is located on a plateau east of Vasai and Virar in Palghar district, north of Mumbai in the Indian state Maharashtra.

The sanctuary forms a corridor between Sanjay Gandhi National Park and Tansa Wildlife Sanctuary

There are three different types of forests – Dry Deciduous, Moist Deciduous and Semi Evergreen.

The region is rich in biodiversity: the Leopard, Wild Boar, Barking Deer, Langur, Bonnet and Rhesus Macaque, and Black-naped Hare, as well as a multitude of birds, including the **Crested Serpent-eagle**, Jungle Owlet, **White-eyed Buzzard**, Oriental Honey-buzzard, Emerald Dove and Heart-spotted Woodpecker can be found here.

Eco sensitive zones

As per the **National Wildlife Action Plan (2002-2016)**, issued by the Union Ministry of Environment, Forest and Climate Change, land within 10 km of the boundaries of national parks and wildlife sanctuaries is to be notified as eco-fragile zones or Eco-Sensitive Zones (ESZ).

ESZs are created as "**shock absorbers**" for the protected areas, to minimize the negative impact on the "fragile ecosystems" by certain human activities taking place nearby. Furthermore, these areas are meant to act as a transition zone from areas requiring higher protection to those requiring lesser protection.

Threats to several protected areas

Mining activities - Bhagwan Mahavir Wildlife Sanctuary, Mollem National Park, Bondla Wildlife Sanctuary, Netravali Wildlife Sanctuary, Madei Wildlife Sanctuary, and Cotigao Wildlife Sanctuaries in Goa.

Narayan Sarovar Wildlife Sanctuary, which contains minerals such as **limestone**, **bauxite, and lignite**. **Iron ore** mining has also severely impacted the **Kudremukh National Park in Karnataka** and the Saranda Reserve Forest in Jharkhand.
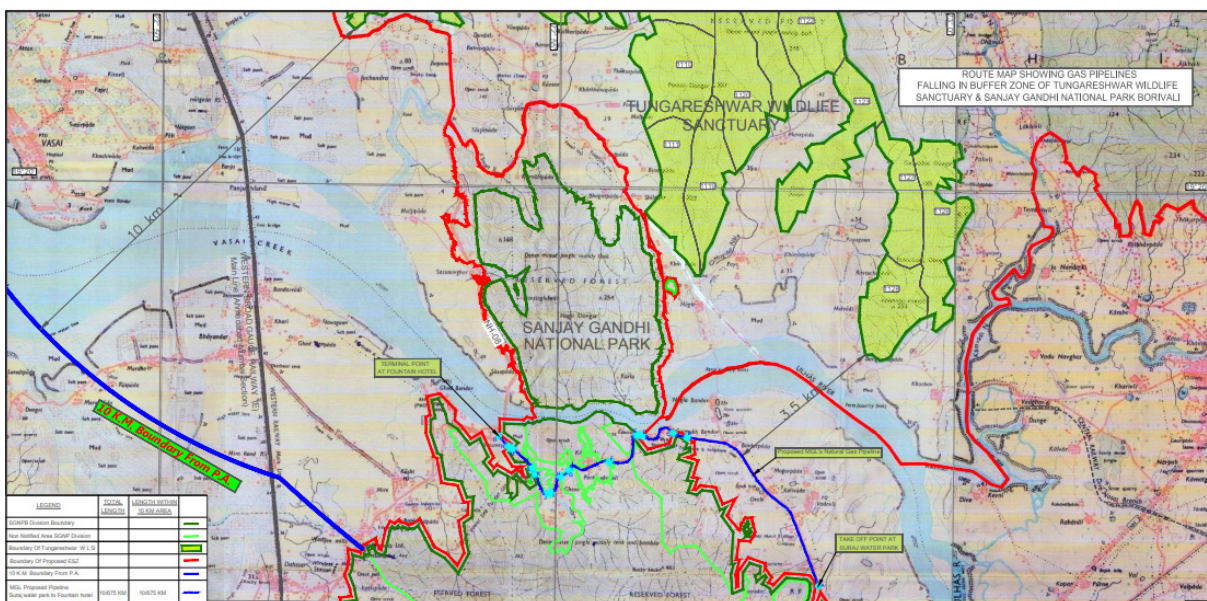
Like stone mining in the vicinity of the Sariska Tiger Reserve, diamond mining near Panna National Park, and limestone mining in Java Ramgarh Sanctuary are illustrative examples of mining projects that have posed significant threats to the wildlife values of the protected areas.

The Recent order on Eco sensitive zones

The Supreme Court on June 3, 2022 directed that every national park and wildlife sanctuary in the country will have **a mandatory eco-sensitive zone of at least one kilometre** starting from its demarcated boundaries. The decision was made in response to a petition to protect forest lands in Tamil Nadu's Nilgiris district.It also stated that **no new permanent structure or mining** will be permitted within the ESZ.

This decision **nullifies the area-specific ESZ boundary limit** around the protected areas, as previously announced by the Supreme Court and would apply to all states and Union Territories where the minimum extent of the eco-sensitive zone is not prescribed.

Oppositions and Exemptions

The Kerala state government had proposed that for some national parks, such as the Thattekad Bird Sanctuary, the extent of the ESZ area should be reduced from the proposed uniform 1-km, to an ESZ ranging from zero to 1 km in the eastern and south-eastern side of the national park.

In December 2021, the Karnataka Chief Minister Basavaraj Bommai said he opposed the decision to declare the Western Ghats as an ecologically sensitive zone, because it would "adversely affect the livelihood of the people in the region".

There was an earlier order on september 23,2022 exempting the **Sanjay Gandhi National Park** and **Thane Creek Flamingo Sanctuary** in Mumbai from minimum area for ESZ.

KANGER VALLEY NATIONAL PARK

Why in news?

Bird watchers and forest department officials counted 200 types of birds in **Chhattisgarh's first-ever inter-state bird survey** conducted in the Kanger Valley National Park from November 25-27, 2022.

About

The survey was organised by the forest department of and birders from Chhattisgarh, in collaboration with non-profits Birds & Wildlife of Chhattisgarh and Bird Count India.

Nine species of owls (including the spot-bellied eagle-owl), 10 birds of prey, 11 species of woodpeckers (including white-bellied woodpecker, the largest woodpecker in peninsular India), and many other species were documented during the survey

KANGER VALLEY NATIONAL PARK

The name of Kanger Ghati National Park is derived from the **Kangar river**, which flows in its length. Kanger Valley is spread over 200 square kilometers.

National Parks & Sanctuaries of Chhattisgarh

Kanger Valley National Park is a **typical mixed humid deciduous type of forest**, in which the Sal, Saugaun, teak and bamboo trees are available in abundance. The most popular species in this area is **Bastar Maina** which enchant everyone with their human voice . **The state bird, Bastar Maina,** is a type of Hill maina (gruncula Dhariosoa), which is capable of emulating the human voices. The forest is home to migrant and resident birds.

The **Cuddapah group of rock formations**, as well as the **Vindhyan group of rock formations**, are the most prevalent rock formations in the park.

Shales which are found in the dense forest of the Kanger national park, are the most common rock formations in the Cuddapah group, which are horizontally bedded, calcareous in many places.

Slate is the other type of rock formation found in the Kanger national park.

The soils are predominantly residual in character and are yellowish-brown, brownish red, reddish, and brown in hue.

On the hilltops and slopes, the soil is poor and rocky. Alluvial soils, high and low level laterites, and ferruginous conglomerates represent recent deposits.

Kutumbasar, Kailash, and Dandak are three spectacular caves in the park, known for their geological features of stalagmites and stalactites. It's also noted for its limestone caves beneath the surface.

GEMINIDS METEOR SHOWER

Why in news?

It is that time of the year when the universe puts up its easiest-to-view meteor shower, the Geminids. This year, the Geminids will peak around December 13-14, when, with a clear sky and away from bright city lights, you can watch scores of meteors streak across the sky.

About

Meteor shower

Meteor shower is a **temporary rise in the rate of meteor sighting**s, caused by the entry into Earth's atmosphere of a number of meteoroids at approximately the same place in the sky and the same time of year, traveling in parallel paths and apparently having a common origin.

Most meteor showers are known or believed to be **associated with active or defunct comets**; they represent Earth's passage through the orbits of these comets and its collision with the streams of debris (typically of sand-grain to pebble size) that have been left behind.

The showers return annually, but, because the densities of meteoroids in the streams (commonly

called meteor streams) are not uniform, the intensities of the showers can vary considerably from year to year.

Geminids meteor shower

The Geminids are the one of the best and most reliable annual meteor showers. If their peak coincides with the new moon, and if the weather is clear, the Geminids can produce approximately 100-150 meteors per hour for viewing.

This year however, the moon is bright, and so only 30-40 meteors per hour will be visible in the Northern Hemisphere. But the Geminids are
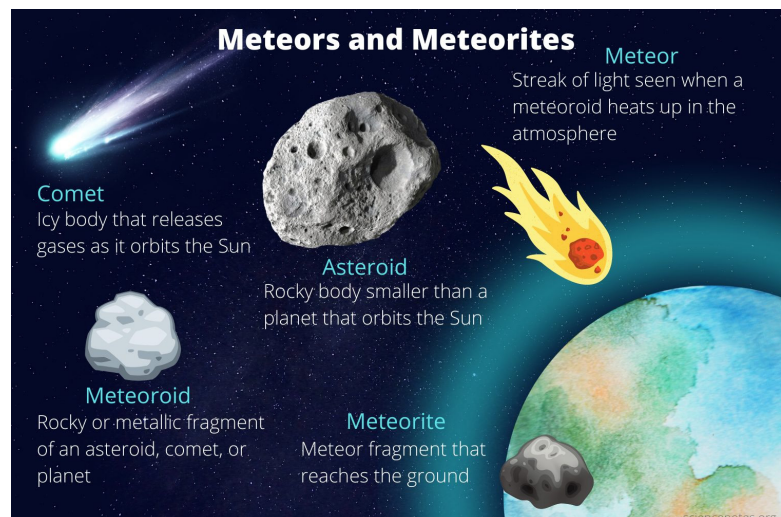
so bright that this should still be a good show.

The Geminids are unique because unlike most meteor showers, they originate not from a comet, but from an asteroid, the 3200 Phaethon.

The asteroid takes 1.4 years to complete one
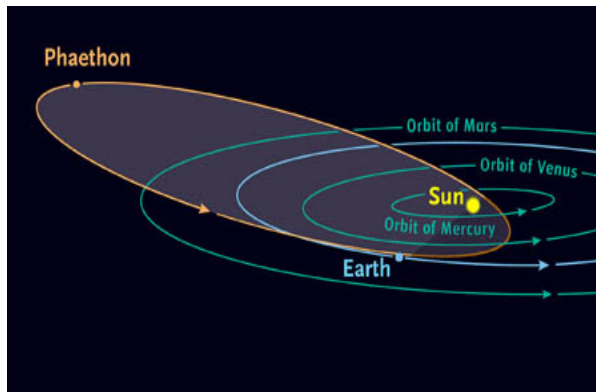
round of the Sun. As the 3200 Phaethon moves close to the Sun while orbiting it, the rocks on its surface heat up and break off. When the Earth passes through the trail of this debris, the Geminids are caused.

Gemini constellation is located northeast of the constellation Orion and between the Taurus and Cancer constellations.

3200 Phaethon

Phaethon was discovered on Oct. 11, 1983, using the Infrared Astronomical Satellite, and named after the Greek myth of Phaethon, son of the sun god Helios, due to its close approach to our Sun.

Phaethon is technically classified as an asteroid - the first to be discovered via satellite.

TAL CHHAPAR SANCTUARY

Why in news?

The famous Tal Chhapar blackbuck sanctuary has received a protective cover against a proposed move of the State government to reduce the size of its eco-sensitive zone.

The World Wildlife Fund for Nature (WWF) has also taken up a major project for the conservation of raptors in the sanctuary, spread in an area measuring 7.19 sq. km.

About

Tal Chhapar Sanctuary is a sanctuary located in the **Churu district of Northwestern Rajasthan**, in the Shekhawati region of India. It is known for blackbucks and is also home to a variety of birds

It is situated on the fringes of **Great Indian Desert**

Tal Chhapar is a refuge of the **blackbuck**.

The sanctuary area is mostly **covered by grasses with a very few trees**. It lies on the passageway of many migratory birds such as **harriers**. These birds pass through this area during September.

Birds commonly seen in the sanctuary are harriers, eastern imperial eagle, tawny eagle, short-

toed eagle, sparrow, and little green bee-eaters, black ibis and demoiselle cranes, which stay till March. Skylarks, crested larks, ring doves, and brown doves are seen throughout the year.

Desert fox and Wildcat can also be spotted along with typical avifauna such as partridge and sand grouse.

The Tal Chhapar Zone comes under the **principal arid zone** of the country. Rainfall in this region is **highly erratic**. There is a large variation in mean annual rainfall in this region

Issues

The issues confronting the sanctuary include **hyper-aridity, grazing pressure, the invasive weed**

Prosopis juliflora, and salt mines in the vicinity. The sanctuary's area is insufficient for its large blackbuck population.

Blackbuck

Blackbuck is found **only in the Indian subcontinent**, mainly in three countries: India, where nearly 95 per cent of the population is present, Nepal, where a small population survives in the arid part of the Nepal plains or Terai, and Pakistan, where it is extinct as a free-ranging animal but an introduced population is found in the **Lal Suhanra National Park** in Bahawalpur, Southern Punjab province.

Distribution - The best numbers are seen in the **Velavadar Blackbuck National Park**, Bhavnagar, Gujarat where a tiny 34 sq. km protected grassland is zealously protected by the Forest Department.

Another notable area is **Tal Chhapar Blackbuck Sanctuary**, Churu district, Rajasthan. This 7 sq km sanctuary may have about a thousand animals. In Rajasthan, however, there are many areas such as Guda Vishnoiyan, Dhawa Doli and Kankania that are protected by the **Bishnoi** community who consider Blackbuck sacred.

Point Calimere Sanctuary in Tamil Nadu is another place to see these graceful animals.

Rehekuri Blackbuck Sanctuary in Ahmadnagar, Maharashtra is the only one Blackbuck Sanctuary in the Deccan where they were once found in millions, providing abundant food for the Deccani Cheetah

Hunting of blackbuck is prohibited under **Schedule I** of the Wildlife Protection Act of 1972.

It has been categorized **least concerned** in IUCN Red Data Book.

ASIAN GIANT TORTOISE

Why in news?

Ten captive-bred Asian Giant Tortoise (Manouria emys) juveniles were soft released into Intaki National Park of Nagaland. The animals were conserved and bred for five years at the **Nagaland Zoological Park, Dimapur** before their release.

About

The species is endemic to Southeast Asia. It is believed to be among the most primitive of living tortoises, based on molecular and morphological studies.

The Asian forest tortoise occurs in Bangladesh, Cambodia, India, Indonesia, Malaysia, Myanmar, Thailand, and Vietnam.

Manouria emys is the only tortoise which lays its eggs above ground in a nest, which the female constructs of leaf litter.

Protection Status

IUCN Red List: Critically Endangered

CITES: Appendix II.

Wildlife (Protection) Act of 1972: Schedule IV

In India, the **Nengpui Wildlife Sanctuary, North Cachar Hills and Nongkhyllem Wildlife Sanctuary** have wild populations in less disturbed habitats.

The Joint Asian Giant Tortoise Recovery Project was started in 2017 with the Nagaland Zoological Park (NZP) and Turtle Survival Alliance (TSA).

Soft release is a process of gradually releasing captive-raised species into the wild. The method helps the species to develop site fidelity among released individuals and eventually develop the habit to live in the vicinity of the release closure.

Nagaland Zoological Park

Nagaland Zoological Park, **Rangapahar** is one of the Model Zoological Parks in India. It was initially granted recognition as a "mini" Zoo by Central Zoo Authority (CZA). Presently the Zoological Park is recognized as a **Medium Zoo** by the Central Zoo Authority, New Delhi.

Ntangki National Park

Ntangki National Park is a wildlife park located in **Peren district of Nagaland**, India. Among the creatures that inhabit the park are the rare **hoolock gibbon**, **golden langu**r, hornbill, palm civets, black stork, tiger, white-breasted kingfisher, monitor lizard, python and sloth bear.

The name "Ntangki" is derived from the Zeme dialect of the **Zeliangrong tribe**.

Wild buffaloes (mithun) and hoolok gibbon which is found only in Nagaland is seen in this national park.

COLD WAVES IN NORTH INDIA

Why in news?

The Metrological department has pointed to the possibility of dense fog in Chandigarh, Punjab, and Haryana over the next four days.

The India Meteorological Department (IMD) on Sunday said cold wave conditions were observed in isolated pockets of Punjab, Haryana, Delhi, and northwest Rajasthan.

About

A cold wave is a **weather phenomenon** that is distinguished by a cooling of the air. A cold wave is **a rapid fall in temperature within a 24 hour period.**

The precise criterion for a cold wave is determined by the rate at which the temperature falls, and the minimum to which it falls. This minimum temperature **is dependent on the geographical region and time of year**.

Usually cold waves are measured by the difference from the normal temperature. Cold waves generally are capable of occurring at any geological location and are formed by large cool air masses that accumulate over certain regions, caused by movements of air streams.

Major Factors for Cold Wave occurrence over India:

Build-up of a ridge (an extended area of relatively high atmospheric pressure) in the jet stream over northwest Asia.

Formation of surface high-pressure over north & central India.

Movement of cold air masses in response to steering winds. by upper-level winds

Triggering mechanism like strong westerly wave approaching northwest India to enhance winds for transport cold air south-eastward.

Extensive snow covers over Northwest Himalayas.

Criteria of Cold Wave/Cold Day: -

Cold Wave

When minimum temperature of a station ≤10°C for plains and ≤0°C for hilly regions.

(a)Based on departure

Cold Wave: Minimum Temperature Departure from normal -4.5 °C to -6.4 °C.

Severe Cold Wave: Minimum Temperature Departure from normal > -6.5°C

(b) Based on actual Minimum Temperature (for Plains only)

Cold Wave: When Minimum Temperature is 4.0°C

Severe Cold Wave: When Minimum Temperature is ≤ 2.0°C

(c) For Coastal Stations

When Minimum Temperature departure is 5-4.5 °C or actual Minimum Temperature is ≤ 15 °C

Cold index: Cold index is the combination of air temperature and wind speed & is a measure of how cold it really feels when wind speed is factored in with the actual air temperature.

Cold Discomfort: Cold discomfort is determined by a combination of meteorological (temperature, wind, direct sunshine), social/cultural (clothing, occupation, accommodation) and physiological (health, fitness, age, level of acclimatization) factors.

Monitoring Of cold waves

Cold wave is monitored by

- Surface observatories
- Upper air observations
- Satellite observations

PURSE SEINE FISHING

Why in news?

The Centre has told the Supreme Court that a ban imposed by certain coastal States on purse seine fishing, which is known to disadvantage endangered species, is not justified.

Purse Seine fishing

Purse seines are used in the open ocean to target dense schools of single-species pelagic (midwater) fish like tuna and mackerel.

A vertical net 'curtain' is used to surround the school of fish, the bottom of which is then drawn together to enclose the fish, rather like tightening the cords of a drawstring purse.

Purse-seine fishing in open water is generally considered to be an efficient form of fishing. It has no contact with the seabed and can have low levels of bycatch (accidental catch of unwanted species).

Fishing is a state subject and the management plan for marine fisheries in territorial waters is the job of the State.

Environmental Impact

One of the main criticisms of purse seine is the use of fish aggregation devices (FADs) this is usually confined to the ocean going tuna purse seiners. FADs congregate the target species but can also encourage many other species around them, and attract large predators such as sharks into the vicinity, all of which may be caught in
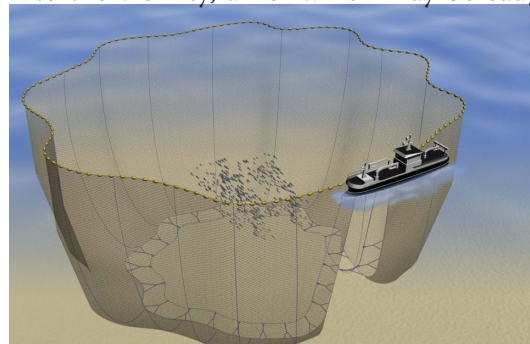
the purse seine

A purse seine does not come into contact with the seabed therefore minimal seabed impact. Very occasionally in shallow water the bottom of the net may lay on the seabed but as the gear is not dragged across the seabed there should very little effect.

As a purse seine is not towed through the water by the vessel, it has relatively low fuel consumption, limiting green house gas emissions.

KALASA-BANDURI

Why in news?

The Union Government has recently approved Karnataka's Kalasa-Banduri drinking water project which is facing opposition from Goa and Maharashtra.

About

The Kalasa-Banduri Nala is a project undertaken by the Government of Karnataka to improve drinking water supply to the Districts of Belagavi, Bagalkot, Dharwad and Gadag.

It involves building across **Kalasa and Banduri, two tributaries of the Mahadayi river** to divert 7.56 TMC of water to the Malaprabha river, which supplies the drinking water needs of the said 4 districts, i.e., Dharwad, Belagavi Bagalkot and Gadag. Karnataka and Goa have since then been at loggerheads over the project.

Central Water Commission has approved the DPR (Detailed Project Report) submitted by Karnataka as on 29th December 2022.

Mahadayi river

Mahadayi or Mhadei, the west-flowing river, originates in **Bhimgad Wildlife Sanctuary (Western Ghats),** Belagavi district of Karnataka.

It is essentially a rain-fed river also called Mandovi in Goa.
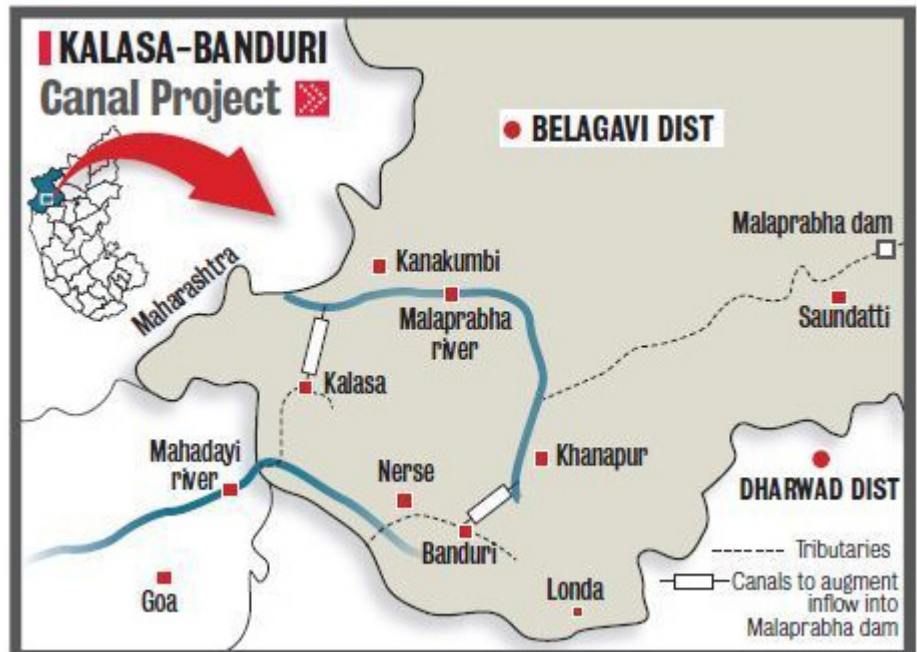
It is joined by a number of streams to form the Mandovi which is one of two major rivers (the other one is Zuari river) that flows through Goa.

Malaprabha river

The Malaprabha River is a tributary of the Krishna River and flows through the state of Karnataka in India. It rises in the Western Ghats at an elevation of 792.4 m (2,600 ft) in the state's Belgaum district. The river joins Krishna River at Kudalasangama in Bagalkot district.

Central Water Commission

Central Water Commission is a premier Technical Organization of India in the field of Water Resources and is presently functioning as an attached office of the **Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India**.

The Commission is entrusted with the

general responsibilities of initiating, coordinating and furthering in consultation of the State Governments concerned, schemes for control, conservation and utilization of water resources throughout the country, for purpose of Flood Control, Irrigation, Navigation, Drinking Water Supply and Water Power Development.

It also undertakes the investigations, construction and execution of any such schemes as required.Central Water Commission CWC is headed by a Chairman, with the status of Ex-Officio Secretary to the Government of India.

Functions of CWC

1. Appraisal of Water Resources Projects
2. Basin Planning and Management
3. Civil & Structural Design of WR
4. Damsafety
5. Flood Forecasting/ Hydrological Observation
6. Human Resource Management
7. Hydro-mechanical Design of WR Administration Projects
8. Hydrology
9. Monitoring of Water Resources Projects
10. River Management
11. Survey and Investigation of WR Projects
12. Water Disputes Resolution
13. Water Management

BOMB CYCLONE

Why in news?

An intense blizzard (or snowstorm) is wreaking havoc across the United States and Canada, with more than 30 people confirmed dead in the US as of Monday, December 26. Four people died in Canada after a road accident on an icy path.

About

Storms can form when a mass of low-pressure air meets a high-pressure mass. The air flows from high pressure to low, creating winds.

A bomb cyclone is a **non-tropical - also known as an extratropical - cyclone** that develops extremely rapidly from a low-pressure system.

It forms when there's a **swift pressure drop**, with a decrease of **at least 24 millibars (which measures atmospheric pressure) over 24 hours** - an event known as bombogenesis.

This quickly increases the pressure difference, or gradient, between the two air masses, making the winds stronger. This process of rapid intensification has a name: bombogenesis.

It is a predominantly maritime, winter event, but also occurs in continental settings, even in the summer.It can produce winds of 120 to 155 km/h, and yield heavy precipitation

This usually happens when a warm air mass collides with a cold one,This time air from the Arctic ploughed into tropical air from the Gulf of Mexico, forming a depression bringing rain and snow.

Compared to normal non-tropical cyclones, bombs are better at converting energy into motion. Even if they don't make landfall, they bring dangerous winds and surf and cold weather to nearby landmasses,

SACRED GROVES

Sacred Groves are found from the western part of Rajasthan to the east of the Aravalli range. These groves are known under various names in Rajasthan as sacred groves (deora, malvan, deorai, rakhat bani, oran, etc.), sacred corridors (deo ghats), temple forests (mandir van) and sacred gardens Brandis, as early as 1887, gave initial information on sacred groves of Aravallis.

He wrote, 'though very few papers have been published on sacredgroves, this does not mean that such areas do not abound in India'.

Commenting on the sacred groves of Rajasthan, particularly Rajputana and Mewar area, he wrote that in Pratapgarh and Banswara such groves are common. Here trees of Anogeissus pendula abound.

People do not cut wood for personal use. Only dead and fallen trees are removed for religious work such as the repair of the temple or funerals.

Joshi (1995) writing on the ethnobotany of Rajasthan provided interesting insights on tribal traditions of maintaining sacred groves.

In the first group they classified groves located near the village and close to a water source. Such groves are also at the top of small hillocks in Aravallis, where people worship Bheruji, Bawsi and Mataji. Khanpa Bheruji, Kukawas Bheruji, Badi Roopan Mata etc. are the example of such sites in Udaipur. In the Vindhyan tract of Kota Bundi, Baran and Jhalawar such groves abound.

The second group of groves is dedicated to Lord Mahadeo. Vegetation of the entire watershed is often protected as groves. Sometimes part of the vegetation in a watershed is protected.

Large trees and a water source are the main characteristics of these groves. Water sources developed as open and step wells (Bawdi) may be seen at Ubeshwarji, Kamalnath, Gautmeshwasji,Taneshwarji and Jhameshwarji. Sometimes both groups can also be found in the same village.

The third type may be as a single tree. In Kotra forest range several large trees of Ficus benghalensis are seen. Because of development of aerial and prop roots these trees look like a grove.

The tradition of protecting Peepal, Gular and Bargad trees is not only found in Rajasthan but also in other states of India. The tradition is also reported from other Asian and African countries.

In northern parts of Aravallis various forms of sacred groves are maintained. These are known as kankar bani, rakhat bani, dev ouranya, vall and devbani.Large tracts of tree-bearing land in otherwise desertified western Rajasthan are called Orans.

These Orans are identical to sacred groves in Aravallis and they offer similar advantages.

One of the finest examples of Oran is Ramdeora in the Jaisalmer District in Rajasthan. Species in most of the Orans are Prosopis cineraria, Zizyphus mauritiana and Salvadora sp.In Jaisalmer District most of the Oranssupport Caparris aphylla. Shrubs include Calotropis procera in Jaisalmer and Zizyphus sp. in Jodhpur Districts.

However, comparatively sacred groves in Aravallis and Vindhyas are larger in area coverage.

Important Orans in Sirohi, a semi-desert district in Rajasthan, include Pichheshwar Mahadeo near Pindwara, Voreshwar Mahadeo in Sheoganj, Sarneshwar Mahadeo near Sirohi (famous for its step-well), Mochal Mataji in Sheoganj (particularly famous for animals like Chinkara and Neelgai), Baleshwari Mataji Oran in Pesua village (famous for a very large Rayan tree) and Varada Hanuman ji which supports several old Prosopis cineraria trees.

STATE OF THE CLIMATE IN ASIA 2021, REPORT

Recently, the State of the Climate in Asia 2021 report published by the World Meteorological Organization (WMO) and the UN Economic and Social Commission for Asia and the Pacific (UNESCAP) has been released.

Findings of the report

India suffered a total loss of **$3.2 billion from floods and $4.4 billion** from storms in 2021 as climate change has made these events more frequent.

Extremely severe cyclonic storm Tauktae formed over the Arabian Sea during pre-monsoon season and was the most devastating.

Severe Cyclonic Storm Yaas hit West Bengal and northern Odisha, causing damages worth Rs 20,000 crore and Rs 600 crore, respectively.

Cyclone Gulab landed on the Andhra Pradesh and Odisha coasts, accumulating damages to the tune of Rs 2,000 crore.

Cyclone Shaheen was formed from the remnants of Gulab and caused heavy rainfall in Gujarat.

Cyclonic Storm Jawad, causing heavy rainfall over the eastern coast.

Thunderstorms and lightning claimed around 800 lives in the country.

Floods and storms accounted for 80 per cent of the natural disasters that struck Asia in 2021.

Upper-ocean warming is important because it directly affects the atmosphere in terms of convection, winds, cyclones etc.

Warming is particularly strong in the Arabian Sea because it has pathways to receive excess heat through atmospheric tunnels and bridges. These regions are warming more than three times faster than the global mean upper-ocean warming rate.

Northeast monsoon rainfall experienced over southern peninsular India during the northeast monsoon was exceptionally above normal (171 per cent of the long-term average) and was the highest (579.1 millimetres) since 1901.

Measures

ESCAP's Asia-Pacific Disaster Report 2022 estimated that **India would need an annual investment in adaptation measures at $46.3 billion, equal to 1.7 per cent of India's GDP.**

Areas that require high investment include resilient infrastructure, improving dry land agriculture, resilient water infrastructure, multi-hazard early warning systems, nature-based solutions and protecting mangroves.

India does not have a separate adaptation fund, but the money is embedded in several schemes by the agriculture, rural and environmental sectors.

Flagship projects like the Mahatma Gandhi National Rural Employment Scheme, which had an annual budget of $13 billion in 2020, should address adaptation in disaster-prone areas. Around 70 per cent of its budget is marked to go into natural resource management and building resilient infrastructure.

LEITH'S SOFT-SHELLED TURTLE

At its 19th Meeting in Panama, the Conference of Parties to CITES adopted India›s proposal to move Leith›s Softshell Turtle from Appendix II to Appendix I.

Significance

The CITES Appendix I listing of this Turtle species would ensure that legal international trade

in the species does not take place for commercial purposes.

It would also ensure that international trade in captive-bred specimens only takes place from registered facilities and further that higher and more proportionate penalties are provided for illegal trade of the species.

The listing of the Leith's soft-shell turtle, thereby, strengthens its CITES protection status to ensure better survival of the species.

About Leith's Soft-shelled Turtle

Leith's Softshell Turtle (Nilssonia leithii) is a large freshwater soft-shelled turtle which is endemic to peninsular India and it inhabits rivers and reservoirs.

The species has been subject to intensive exploitation over the past 30 years. It has been

poached and illegally consumed within India. It has also been illegally traded abroad for meat and for its calipee.

The population of this turtle species is estimated to have declined by 90% over the past 30 years such that the species is now difficult to find.

Protection Status

IUCN Red List: Critically Endangered

Wildlife Protection Act (WPA): Schedule IV

CITES: Appendix I

RATNAGIRI GEOGLYPS

Why in news?

Experts and conservationists have raised concerns over the proposed location for a mega oil refinery in Barsu village of Maharashtra's Ratnagiri district. They claim that the refinery might damage prehistoric geoglyphs found in the area.

About

Geoglyphs/ Petroglyphs

Geoglyphs are a **form of prehistoric rock art,** created on the **surface of laterite plateaus** (Sada in Marathi). They are made by removing a part of the rock surface through an incision, picking, carving or abrading. They can be in the form of rock paintings, etchings, cup marks and ring marks.

Konkan Region - Laterite Plateaus

The Konkan region is one of the major geographic divisions of western India. The uniqueness of this region is the **presence of large laterite or basaltic plateaus** on the crest of mountains close to the coast and Western Ghats mountains. The forest, mostly semi-evergreen, is in the valleys. This region has **high endemicity**

Laterite is a residual, sedimentary rock that is characterised by a rust colour and porous structure. Because of its porous nature, the water drains out of the plateau quite quickly when it rains.

Clusters of geoglyphs are spread across the Konkan coastline in Maharashtra and Goa, spanning around 900 km. Porous laterite rock, which lends itself to such carving, is found on a large scale across the entire region.

Ratnagiri's Geoglyph Sites

Ratnagiri district has more than 1,500 pieces of such art, also called *"Katal shilpa,"* spread across 70 sites. **UNESCO's tentative world heritage list** mentions seven sites with petroglyphs in Ratnagiri district — Ukshi, Jambharun, Kasheli, Rundhe Tali, Devihsol, Barsu and Devache Gothane, one in Sindhudurg district –Kudopi village, and nine sites at Phansamal in Goa.

Other similar sites

The world's largest man-made sketch or

geoglyph.is discovered in the Thar desert of Rajasthan, India. It is larger than the ones discovered in **Peru's Nazca.** It is a massive spiral artwork in **Boha hamlet**, close to Jaisalmer, that spans over 1,00,000 square metres.

RIVER SARSA

Why in news?

As Sikhs across India and the rest of the world observe the 356th birth anniversary of Guru Gobind Singh, river sarsa in north India associated with a key moment in his life is gasping for breath due to the pharmaceutical waste being discharged from the Baddi-Barotiwala-Nalagarh (BBN) industrial complex

About

- Sarasa river or Sirsa river is a river in north India.

- The river **rises in the Shiwalik foothills of Southern Himachal Pradesh.** It flows in the western part of Solan district, then enters into Punjab near Diwari village. **Sarsa joins the river Sutle**j at the eastern part of Rupnagar district of Punjab.

- Baddi, Nalagarh, Barotiwala industrial areas in Solan district are on banks of

Tourist places in Rupnagar District

this river. The various research reports by the Central Pollution Control Board, Himdhara (a Himachal-based watchdog) and other media reports note that industrial effluents from **Baddi, Barotiwala, and Nalagarh industrial area**s, including the discharge from a common effluent treatment plant, illegal dumping of garbage, and unlawful sand mining, are the chief threats to the Sirsa river.

- The pollution has caused great damage to the aquatic life and increased fish mortality

Historical Importance

Battle of Sarsa was fought between Khalsa and Mughal Empire on 1704. The battle ended with the retreat of Mughal forces from the battle field.

On 6 December 1704, the Mughals and the hilly kings sent a letter to Guru Gobind Singh in which they swore on the Quran and the cow respectively, that if Guru and his Sikhs vacate the fort of Anandpur, the Mughals and the hilly kings would not attack them. They would be given safe passage if they vacate the fort.

Under a peace treaty Guru Gobind Singh along with the Sikhs left the fort on the night of 6th December 1704. When the Sikhs reached near the river Sarsa, they were attacked by a large army of Mughals and hilly kings. The Mughals broke their oath and attacked Guru's forces.

A fierce battle took place near river Sarsa. The Sikhs reacted with great courage and bravery to this sudden attack and the mughals retreated

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NILGIRI TAHR CONSERVATION PROJECT

Why in news?

Tamil Nadu is set to implement Project Nilgiri Tahr, aimed at developing a better understanding of the population, distribution and ecology of

the endangered species which is the state animal.

About

The Rs 25.14 crore project would be

implemented during a 5-year period from 2022-2027, and follow a strategy including synchronised surveys to estimate numbers of the tahrs through radio telemetry and radio-collaring, among others

Nilgiri Tahr

The Nilgiri tahr is the only mountain ungulate in southern India amongst the 12 species present in India. It is also the state animal of Tamil Nadu.

The Nilgiri tahr, which used to be found along the entire stretch of Western Ghats, is presently found only in small fragmented pockets. A large part of its population has been wiped out from its historical range. The existing populations are under severe stress due to habitat loss and hunting.

This endemic species of the Western Ghats is listed as Endangered in the IUCN Red List of Threatened Species and is protected under Schedule I of the Wildlife (Protection) Act of India, 1972.

Distribution

Currently, the Nilgiri tahr distribution is along a narrow stretch of 400 km in the Western Ghats between Nilgiris in the north and Kanyakumari hills in the south of the region.

Though there are smaller populations found in the Palani hills, Srivilliputtur, and the Meghamalai and Agasthiyar ranges, only two well-protected, large populations are documented -- one from the Nilgiris and the other from the Anamalais, including the high ranges of Kerala.

The Eravikulam National Park in Anamalai hills, Kerala, is home to the largest population of the Nilgiri tahr, with more than 700 individuals.

The population of Nilgiri Tahr has been estimated at 3,122 individuals in the wild as per a report released by WWF India in 2015.

Threats to Nilgiri Tahr

The Nilgiri tahr faces a multitude of threats such as:

Habitat loss due to rampant deforestation, competition with domestic livestock, hydroelectric projects in Nilgiri tahr habitat, and monoculture plantations

Occasional hunting for its meat and skin

As a result of extreme habitat fragmentation, its population has declined drastically in the last few years. Plantation activities affect the Nilgiri tahr habitat, which includes grasslands and sholas.

DEATH OF POLAR BEARS

According to recent survey by the government, Polar bears in Canada's Western Hudson Bay on the southern edge of the Arctic are continuing to die in high numbers. This has consequences for all other life forms in the region.

Polar bears live in the Arctic, but not Antarctica. Down south in Antarctica you'll find penguins, seals, whales and all kinds of seabirds, but never polar bears. Polar bears are carnivores. In the summer, they may consume some vegetation but gain little nutrition from it. Their primary prey are ringed seals (Pusa hispida). They also hunt bearded seals (Erignathus barbatus), harp seals (Pagophilus groenlandicus), hooded seals (Cystophora cristata), walruses (Odobenus rosmarus), sea

birds and their eggs, small mammals, fish and scavenge on carrion of seals, walruses, or whales.

Bears often leave a kill after consuming only the blubber. The high caloric value of blubber relative to meat is important to bears for maintaining an insulating fat layer and storing energy for times when food is scarce. Polar bears do not store or cache unconsumed meat as other bears do. 'Vulnerable' status on the IUCN Red List of endangered species.

Impact of climate change on polar bears

The Arctic sea ice is crucial to polar bears' survival as they use it not only to hunt seals — their chief food — but also for travelling,

mating and resting. However, with rising global temperatures, the sea ice is breaking earlier in summer and refreezing later in winter, due to which polar bears get less time to hunt and have to stay hungry for longer and travel greater distances.

This extra need for energy coupled with a lack of food can result in body deterioration and a drop in the average weight of adult bears, according to a recent report published in Carbon Brief, a UK-based website covering climate science, climate policy and energy policy. The report also found that the change in the diet leads to a higher mortality rate of bear cubs.

Importance of polar bears

Polar bears are one of the most significant predators in the Arctic region and they *keep biological populations in balance.* The big kills made by them serve as a food resource for scavengers like Arctic foxes and Arctic birds. If polar bears aren't able to hunt animals like seals, it can *severely impact the food chain and health of the ecosystem.*

Researchers have also found that once polar bears can't find seals to eat, they would quickly move to kill and survive on other creatures in the Arctic region. This would *threaten the existence of species like the Arctic fox or the walrus.* Moreover, it might also cause the overpopulation of seals, which could endanger the existence of crustaceans and fish that are an important food source for local human populations as well as other Arctic wildlife.

DECLINING CAMEL POPULATION IN INDIA

The number of camels shows a decline of 37% from the 2019 livestock census. The number of camels has come down from 4 lakh during the livestock census of 2012 to 2.52 lakh in the 2019 livestock census. Around 84% of camels in India are located in Rajasthan and around 11% are located in Gujarat.

Reasons for decline of camels in India

Decline in the grazing land is one of the reasons for the decline in the number of camels also. The **use of camel in agriculture** and transport sectors have also come down in Rajasthan. Dependency on **camels for transportation** in most of the interior areas are reducing gradually and people prefer vehicle than camel for transportation. **Providing fodder to camels due to restrictions i**n forest areas made it difficult for camel rearers.

Conservation Efforts

Rajasthan government has declared *camel as State animal in 2014.* Rajasthan has enacted and enforced the Rajasthan Camel (Prohibition of Slaughter And Regulation of Temporary Migration or Export) Act, 2015. Under the sub-mission of National livestock Mission (NLM), a component named 'Livestock Insurance' has been included, the benefit of which can be taken by the Camel breeders. National Research Centre on Camel (NRCC) under the aegis of ICAR in Bikaner, Rajasthan to promote research and development on camels.

Camel Varieties in India

Dromedary - The single-humped Dromedarian (Camelus dromedarius) camel is found in the hot deserts. Dromedary is found in Rajasthan, Arabia and North Africa. The Dromedarian is longer-legged than the Bactrian camels. *Kharai camel is a separate breed of camels known as "Swimming Camels"* is also found in India.

Bactrian camel - Bactrian double-humped camel is found in Nubra valley, Ladakh. The double-humps inhabit high-altitude, cold-desert regions. As a native of Gobi desert, is found on a expanse of cold-desert areas across Mongolia, China, Kazakhstan, Turkmenistan, Uzbekistan and parts of Afghanistan. *Bactrian,is smaller than dromedarian. The double-humped camel has more water-retaining capacity than the Dromedarian.*

ASSISTANCE TO BOTANIC GARDEN (ABG) SCHEME

A scheme by the Union Ministry ofEnvironment, Forest and Climate Change (MoEF&CC) was ineffective in conserving threatened and endemic plants in the country, said a report by the Comptroller and Auditor General (CAG) of India for the financial year 2020-2021.

Assistance to Botanic Garden (ABG) scheme is a scheme of MoEF&CC. It was implemented through Botanical Survey of India (BSI) with a budget of Rs 48 crore. Its main objective is on ex-situ conservation and multiplication of threatened and endemic plants species.

Several deficiencies had been observed in MoEF&CC's project management, the report said. Some of there were: Inaction in processing the request of Central Leather Research Institute, Chennai, (CLRI) to revise the number of project fellowships. Due to this, CLRI was unable to retain the project fellows who were engaged in the project; Failure to obtain a formal commitment from the industry partner, which resulted in limited participation by the industry partner; A lack of regular monitoring of the progress of the project, which affected the timely implementation of the project.

INCENTIVE FOR GREEN HYDROGEN INDUSTRY

The government is planning a $2 billion incentive program for the green hydrogen industry, in a bid to cut emissions and become a major export player in the field.

Green hydrogen is hydrogen gas produced through the electrolysis of water. It is an energy-intensive process for splitting water into hydrogen and oxygen— using renewable power to achieve this. ***The current cost of green hydrogen in India is ₹300 to ₹400 per kg.***

Hydrogen is an important source of energy since it has zero carbon content and is a non-polluting source of energy in contrast to hydrocarbons that have net carbon content in the range of 75–85 per cent. Hydrogen energy is expected to reduce carbon emissions that are set to jump by 1.5 billion tons in 2021. It has the highest energy content by weight and lowest energy content by volume.

As per International Renewable Energy Agency (IRENA), Hydrogen shall make up 6 per cent of total energy consumption by 2050. Hydrogen energy is currently at a nascent stage of development, but has considerable potential for aiding the process of energy transition from hydrocarbons to renewable.

Commercially viable Hydrogen can be produced from – Hydrocarbons including natural gas, oil and coal through processes like steam methane reforming, partial oxidation and coal gasification. Renewables like water, sunlight and wind through electrolysis and photolysis and other thermo-chemical processes.

Production of Green Energy:

For source material, green hydrogen today is typically generated from water through a process known as electrolysis, which uses an electric current to split water into its component molecules of hydrogen and oxygen. This is done using a device called an electrolyzer, which utilizes a cathode and an anode (positively and negatively charged electrodes). This process produces only oxygen – or steam – as a byproduct. As for energy supply, to qualify as "green hydrogen," the source of electricity used for electrolysis must derive from renewable power, such as wind or solar energy. Currently the production of green hydrogen is two or three times more expensive than blue hydrogen.

Challenges in producing Green Hydrogen

India's transition towards a green hydrogen economy (GHE) can only happen once certain key issues are addressed.

Supply-Chain Issues: GHE hinges upon the creation of a supply chain, starting from the manufacture of electrolysers to the production of green hydrogen, using electricity from a renewable energy source.

Technology: Green hydrogen needs electrolysers to be built on a scale larger than we've yet seen.

Storage: Either very high pressures or very high temperatures are required, both with their own technical difficulties.

Explosion Hazard: It is hazardous because of its low ignition energy and high combustion energy.

Risk to use: Automotive fuels are highly inflammable, but a vehicle laden with hydrogen is likely to be more vulnerable in case of a major accident.

High Cost of Production: To become competitive, the price per kilogram of green hydrogen has to reduce to a benchmark of $2/kg. At these prices, green hydrogen can compete with natural gas.

Energy intensivity: Creating green hydrogen needs a huge amount of electricity, which means an enormous increase in the amount of wind and solar power to meet global targets.

Economic sustainability: One of the biggest challenges faced by the industry for using hydrogen commercially is the economic sustainability of extracting green or blue hydrogen.

Technological challenges: The technology used in production and use of hydrogen like Carbon Capture and Storage (CCS) and hydrogen fuel cell technology are at nascent stage.

Cost Factor: These technologies are expensive which in turn increases the cost of production of hydrogen and will require a lot of investment which in turn add fiscal pressure on government.

Higher Maintenance costs: Maintenance costs for fuel cells post-completion of a plant can be costly.

Need for legal and administrative adherence: Certification mechanisms, recommendations, and regulations for different components of the system.

Lack of proper infrastructure, only 500 Hydrogen stations exist globally. Only countable manufacturers are involved as market players in this technology. Low user acceptance and social awareness. Developing after-sales service for hydrogen technology.

Way forward

Hydrogen energy is at a nascent stage of development but has significant potential for realizing the energy transition in India. The new policy is a futuristic vision that can help the country not only cut down its carbon emissions but also diversify its energy basket and reduce external reliance. India's transition can be a testament to the world on the achievement of energy security, without compromising the goal of sustainable development. The GoI must strongly pursue the objective of creating a GHE to make India a global manufacturing hub and place itself at the top of the green hydrogen export market.

US – CANADA GREAT LAKES

- Scientists are building a sensor network to detect the trends in the water chemistry of Lake Huron, one of the five Great Lakes of North America.

- Recently, it has been observed that by 2100, even the Great Lakes — Superior, Michigan, Huron, Erie, and Ontario — might approach acidity at around the same rate as the oceans, the AP report said. Researchers hope the data from the Lake Huron project would add to scientific information on the subject.

- Acidification of oceans or freshwater bodies takes place when excess carbon dioxide in the atmosphere gets rapidly absorbed into them. Scientists initially believed this might be a good thing, as it leaves less carbon dioxide in the atmosphere. But in the past decade or so, it has been established that absorption of carbon dioxide leads to a lowering of the pH, which makes the water bodies more acidic.

- The Great Lakes are a series of large interconnected freshwater lakes in the mid-east region of North America that connect to the Atlantic Ocean via the Saint Lawrence River.

- There are five lakes, which are Superior, Michigan, Huron, Erie, and Ontario and are in general on or near the Canada–US border.

- Hydrologically, lakes Michigan and Huron are a single body joined at the Straits of Mackinac. By itself, Lake Huron is the world's third largest freshwater lake, after Lake Superior and Lake Victoria. The Great Lakes Waterway enables modern travel and shipping by water among the lakes.

- The Great Lakes contain a fifth of the world's total freshwater, and is a crucial source of irrigation and transportation. They also serve as the habitat for more than 3,500 species of plants and animals.

COP 15 OF CONVENTION ON BIOLOGICAL DIVERSITY

Context

A major international environmental conference has concluded in Montreal, Canada, promising to take urgent action to protect and restore the world's biodiversity — all the different forms of life, plants as well as animals, that inhabit this planet.

This conference was the biodiversity equivalent of the more high-profile climate meetings that are held every year. Signatories to the Convention on Biological Diversity (CBD), a 1993 agreement, meet every two years not annually like the climate meetings to work on a global plan to halt biodiversity loss and restore natural ecosystems.

The Montreal meeting was the 15th edition of this conference, hence the name COP15 — or the 15th Conference of the Parties to the CBD.

Global Biodiversity Framework

The Montreal Conference has delivered a new agreement called the Global Biodiversity Framework (GBF), which contains four goals and 23 targets that need to be achieved by 2030. The GBF is being compared to the 2015 Paris Agreement on climate change that is guiding global climate action.

It is commonly referred to as the 30×30 target: a commitment to protect at least 30 per cent of the world's lands, oceans and coastal areas by 2030. A related commitment is to ensure that restoration activities would be started on at least 30 per cent of degraded land or marine ecosystems by 2030.

The GBF goals and targets do not prohibit the use of biodiversity, but call for sustainable use, and a sharing of benefits from genetic resources.

Target five specifically states that the use, harvesting and trade in wild species should be "sustainable, safe and legal, preventing overexploitation, minimising impacts on non-target species and ecosystems... and reducing the risk of pathogen spillover..."

The GBF emphasises respect for the rights of indigenous communities that traditionally protect forests and biodiversity, and their involvement in conservation efforts. It advocates similar roles for women and local communities.

Agricultural practices also find a strong focus. Besides emphasising sustainable practices in agriculture, aquaculture, fisheries and forestry, the agreement calls upon members to adopt biodiversity-supporting methods such as agroecology and sustainable intensification.

This acquires significance, since growing Genetically Modified (GM) crops is not favoured by agroecologists as they could contaminate nearby wild species of the same plants.

One target also looks at turning cities into hosts of biodiversity, by expanding the area of and improving the quality and access to urban green and blue spaces. Urban planning should also be biodiversity-inclusive, "enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature."

Funding Arrangements

By 2030, the GBF hopes to see at least $200 billion raised per year from all sources — domestic, international, public and private — towards implementation of the national action plans.

In terms of international funding, developing countries should get at least $20 billion a year by 2025 and at least $30 billion by 2030 through contributions from developed countries.

The Global Environment Facility (GEF), a multilateral body that partners countries and agencies, has been asked

to establish in 2023, and until 2030, a Special Trust Fund to support the implementation of the GBF.

Complementing this, the GBF envisages that there will be access to justice and information related to biodiversity for indigenous peoples and local communities, respecting their cultures and rights over lands, territories, resources, and traditional knowledge, as well as by women, children and youth, and persons with disabilities, and ensure the full protection of environmental human rights defenders.

In line with UNSDG

The GBF is aligned with **UN Sustainable Development Goals**, three of which directly deal with the environment and thus with biodiversity: *Goal 13 on climate action, Goal 14 on life below water and Goal 15 on life on land.*

Why is biodiversity important?

According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), a quarter of the plants and animals it assessed for the 2019 Global Biodiversity Outlook are threatened, which translates to about one million species facing extinction.

Similarly, a review on the economics of biodiversity by Cambridge professor Partha Dasgupta commissioned by the U. K. government reported that the current model of economic growth would require 1.6 earths to maintain current lifestyles.

Some Background of UNFCCC and CBD

The UN Framework Convention on Climate Change (UNFCCC) and the CBD were both outcomes of the 1992 Rio Earth Summit — as was the third member of the family, the Convention to Combat Desertification (CCD), which deals specifically with the issue of land degradation. The CBD came into force in 1993; the other two in the following year.

The three environmental conventions seek to address the issues that overlap among them. Climate change is one of the main drivers of biodiversity loss, while changes in land and ocean use have an impact on climate change.

Land degradation appears as a cause as well as effect in both climate change and biodiversity loss. So, while all the three agreements hold their separate COPs, the interlinkages, not very obvious in the 1990s, are getting increasingly evident. The success on any one helps the cause of the others too.

The CBD has given rise to two 'supplementary' agreements — the Cartagena Protocol of 2003 and the Nagoya Protocol of 2014. Both agreements take their names from the places where they were negotiated.

The Cartagena Protocol on Biosafety seeks to protect biodiversity from genetically modified organisms by ensuring their safe handling, transport and use. Genetically modified crops, for example, can interfere with natural ecosystems in ways that might not yet be fully understood. That is the reason why GM crops are cultivated on segregated farms.

The Nagoya Protocol on Access and Benefit Sharing deals with the commercial utilisation of biological and genetic resources, for example, by pharma companies. It asks the host countries to provide access to its genetic resources in a legal, fair and non-arbitrary manner and, as mentioned above, offers them a fair and equitable share of benefits arising out of the utilisation of those resources.

THE ENERGY CONSERVATION (AMENDMENT) BILL, 2022

Context

The Energy Conservation (Amendment) Bill, 2022 recently passed by both the Rajya Sabha and the Lok Sabha. The Bill aims to increase energy efficiency and proposes a carbon credit trading system through which major power consumers will have to ensure that part of their energy requirements are met with renewable energy sources.

Key Features of the bill

Carbon credit trading: The Bill empowers the central government to specify a carbon credit trading scheme. Carbon credit implies a tradeable permit to produce a specified amount of carbon dioxide or other greenhouse emissions.

The central government or any authorised agency may issue carbon credit certificates to entities registered and compliant with the scheme. The entities will be entitled to trade the certificates. Any other person may also purchase a carbon credit certificate on a voluntary basis.

Obligation to use non-fossil sources of energy:

The Act empowers the central government to specify energy consumption standards. The Bill adds that the government may require designated consumers to meet a minimum share of energy consumption from non-fossil sources. Different consumption thresholds may be specified for different non-fossil sources and consumer categories.

Designated consumers include: (i) industries such as mining, steel, cement, textile, chemicals, and petrochemicals, (ii) transport sector including Railways, and (iii) commercial buildings, as specified in the schedule. Failure to meet this obligation will be punishable with a penalty of up to Rs 10 lakh. It will also attract an additional penalty of up to twice the price of oil equivalent of energy consumed above the prescribed norm.

Energy conservation code for buildings: The Act empowers the central government to specify Energy Conservation Code for buildings. The code prescribes energy consumption standards in terms of area. The Bill amends this to provide for an 'Energy Conservation and Sustainable Building Code'. This new code will provide norms for energy efficiency and conservation, use of renewable energy, and other requirements for green buildings.

Under the Act, the energy conservation code applies to commercial buildings: (i) erected after the notification of the Code, and (ii) having a minimum connected load of 100 kilowatt (kW) or contract load of 120 kilo volt ampere (kVA). Under the Bill, the new Energy Conservation and Sustainable Building Code will also apply to the office and residential buildings meeting the above criteria. The Bill empowers the state governments to lower the load thresholds.

Standards for vehicles and vessels: Under the Act, the energy consumption standards may be specified for equipment and appliances which consume, generate, transmit, or supply energy. The Bill expands the scope to include vehicles (as defined under the Motor Vehicles Act, 1988), and vessels (includes ships and boats). The failure to comply with standards will be punishable with a penalty of up to Rs 10 lakh. Non-compliance in case of vessels will attract an additional penalty of up to twice the price of oil equivalent of energy consumed above the prescribed norm. Vehicle manufacturers in violation of fuel consumption norms will be liable to pay a penalty of up to Rs 50,000 per unit of vehicles sold.

Composition of the governing council of BEE: The Act provides for the setting up of the Bureau of Energy Efficiency (BEE). The Bureau has a governing council with members between 20 and 26 in number. These include: (i)

secretaries of six departments, (ii) representatives of regulatory authorities such as the Central Electricity Authority, and the Bureau of Indian Standards, and (iii) up to four members representing industries and consumers. The Bill amends this to provide that the number of members will be between 31 and 37. It increases the number of secretaries to 12. It also provides for up to seven members representing industries and consumers.

Challenges

Regulation of carbon credit trading

The question is which is the appropriate Ministry to regulate the carbon credit trading scheme

No clarity on who will regulate the carbon credit market

Typically, trading platforms are regulated by respective sectoral regulators. For example, share and commodity trading is regulated by the Securities and Exchange Board of India (SEBI). Electricity trading is regulated by Central Electricity Regulatory Commission (CERC). The regulating entities for trading have been specified in respective Acts. The Bill does not give clarity on how carbon credit certificates will be traded, or who will regulate such trading. The question is if there were to be a regulator, should it be specified in the Act itself.

Same activity may be eligible under renewable energy, energy savings, and carbon credit trading schemes

Currently, there are two key trading schemes operational in the energy sector in India:

Renewable Energy Certificate under the Electricity Act, 2003 for promoting renewable energy, and

(ii) Energy Savings Certificate under the Energy Conservation Act, 2001 for promoting energy efficiency.

The Bill adds a tradeable carbon credit certificate for reducing carbon emissions. The same activity may get covered under these schemes separately.

SOIL DEGRADATION

Land degradation

Land degradation is the deterioration or loss of the productive capacity of the soils for present and future. When land is degraded, soil carbon and nitrous oxide is released into the atmosphere, making land degradation one of the most important contributors to climate change. Pressure on the global land resource is increasing due to other factors as well, such as agricultural production systems made less resilient by the loss of biodiversity, and natural factors such as climate variability and extreme weather events.

Land Degradation Neutrality (LDN) has been

defined as a state whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and spatial scales and ecosystems.

SDG 15 - LIFE ON LAND - By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

The United Nations Convention to Combat Desertification (UNCCD), adopted in 1994, is the sole legally binding international

agreement linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid, and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.

Importance of Soil Health

Soil health plays an *important role in agricultural productivity* ,environmental resiliency ,and ecosystem sustainability

The soil performs various ecological services as given below.

- Erosion control
- Local biodiversity ,natural beauty ,etc.
- Flood control
- Increased yields
- Pest control
- Reduced fertilizer expenditures
- Less necessary irrigation

Causes of Land degradation

Today ,nutrient loss and pollution significantly threaten soils ,and thereby **economic well-being** of land dependent communities.

Impacts of soil degradation are far reaching and can have irreparable consequences on human and **ecosystem health.**

Because soil degradation contributes to land degradation ,it also means that it creates a significant **loss of arable land**

As soil is the basis of food systems ,it is no surprise that soil health is critical for healthy **food production.**

the **burden of unpaid care** and domestic work shouldered by women and girls ,which has also been further compounded by the pandemic.Because women are often the ones responsible for securing water ,food and fuel for cooking ,they are the most vulnerable to deforestation ,land degradation ,and drought.

An estimated 1.2 billion jobs depend on healthy and well-functioning ecosystems .Agriculture ,the world's largest employer,
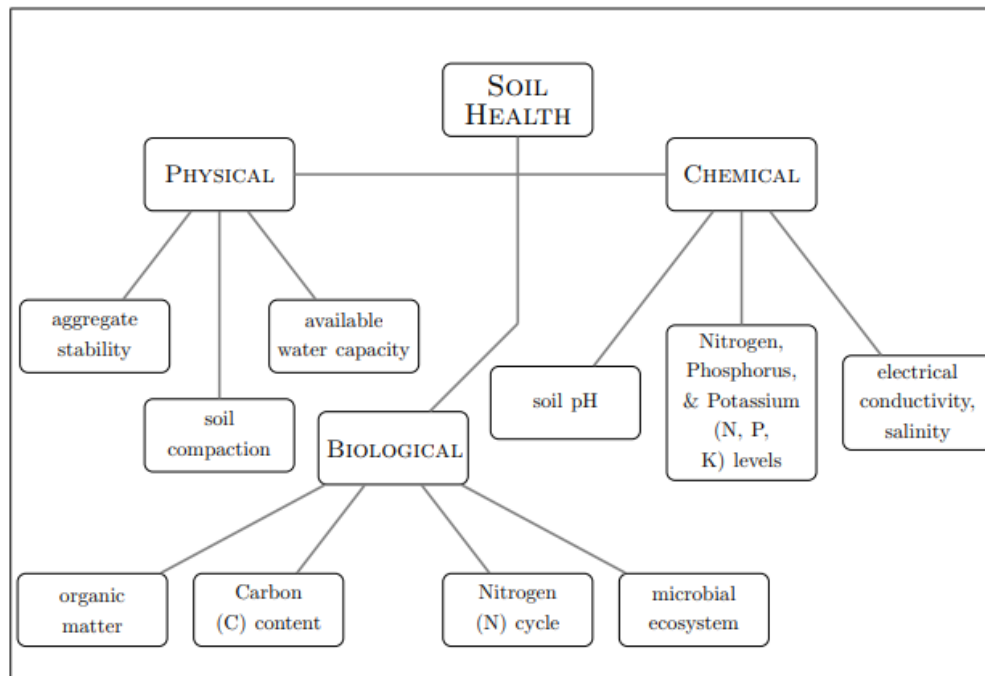
Figure 1: A simplified framework for soil health

undermine nutrition and food security globally.

Soil degradation in some form or another affects around 29% of India's total land area .This in turn threatens agricultural productivity ,in-situ biodiversity conservation, water quality and the **socio-**

As land pollution and soil erosion progress,the soil health decreaces and the animals are forced to shift habitats and adapt to new conditions .As a result, **some species are at risk of extinction**.

Drought and land degradation tend to increase

supports about 1.1 billion people .Desertification and land degradation have a **negative impact on jobs**, lead to unwanted labour migration and exacerbate crisis situations.

India's approach to Land Degradation

To address the issues of desertification ,land degradation and drought ,India is implementing **sustainable land management practices** through various approaches, although it **does not have a specific policy or legislative framework for combating desertification**.

The Government of India is implementing a five-pronged strategy for soil conservation. This includes making soil chemical-free ,saving soil

Combat Desertification) NAP(was submitted to UNCCD that focuses on the status and impacts of desertification and initiatives taken for combating desertification.

India is also preparing its New National Action Programme to Combat Desertification)NNAP-CD(

The concerns of land degradation ,drought and desertification ,are moreover, reflected in various policies) e.g ,.National Water Policy;2012

agriculture

Starting with the first Five Year Plan(1951-1956) which focussed on' **land rehabilitation** ,'subsequent Five Year Plans have initiated longterm programmes for the dry lands ,for drought prone areas and to enhance rainfed agriculture and reduce soil erosion .In addition ,these programmes dovetail with other schemes so that convergence is achieved.

A brief review of

Causes of soil degradation

Physical
- Excess tillage operations
- Use of heavy machinery equipment
- Soil erosion
- Surface crusting
- Soil compaction

Chemical
- Secondary salinization due to excess irrigation
- Excessive use of agro-chemicals
- Heavy metal contamination
- Nutrient toxicity/ deficiency

Biological
- Loss of biodiversity
- Reduced soil organic matter
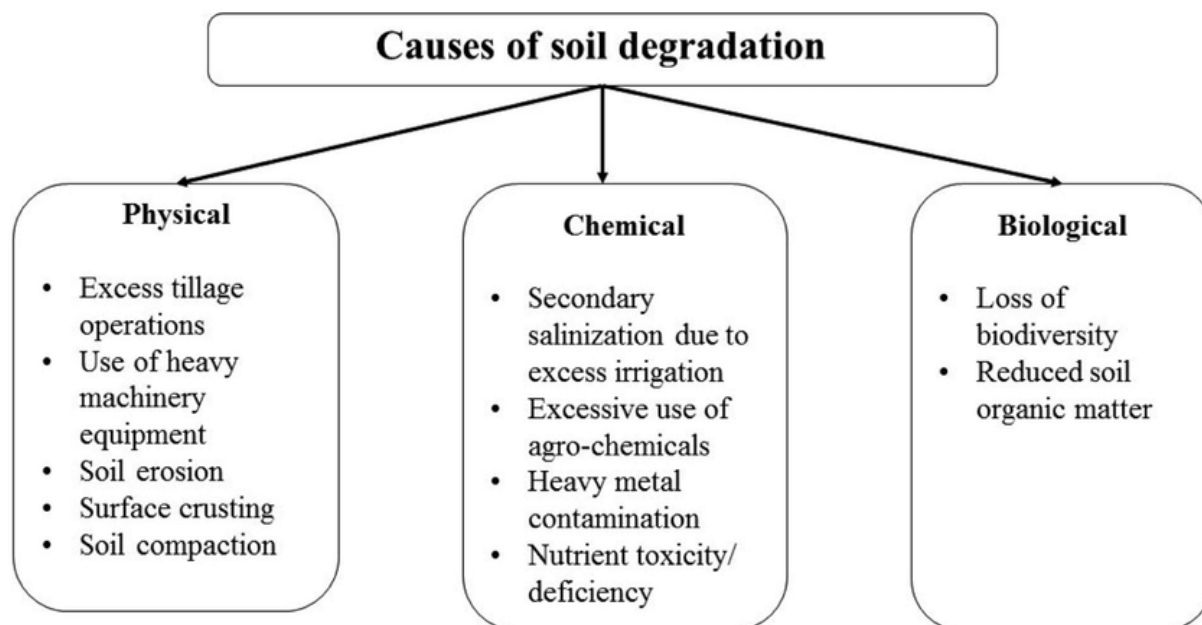
biodiversity ,enhancing SOM, maintaining soil moisture, mitigating soil degradation and preventing soil erosion .Earlier, farmers lacked information relating to soil type ,soil deficiency and soil moisture content.

India became a signatory to the UNCCD on 14 October1994 and ratified it on 17 December ,1996while in ,2010 the **National Action Programme to**

National Forest Policy;1988 National Agricultural Policy ;2000Forest) Conservation(Act ;1980 Environment)Protection (Act ;1986 National Environmental Policy;2006 National Policy for Farmers ;2007National Rainfed Area Authority) NRAA,(2007 -(National Forest Policy as well in the objectives of sustainable land management) SLM,(sustainable forest management)SFM (and sustainable

the centrally sponsored schemes that India has been implementing since the first Five Year Plan is provided below.

Soil Conservation in the Catchment of River Valley Projects) RVP (and Flood Prone Areas) (FPR)

Launched in,1962-1963 the sheme aims at controlling the siltation of reservoirs,

enhancing productivity of catchment areas through integrated planning of watersheds

Reclamation and Development of Alkali& Acid Soils) RADAS(

Launched during the7 th Five-year-plan the scheme is continuing in the states of Haryana ,Punjab and Uttar Pradesh .It aims to improve physical conditions and productivity status of alkaline soils in order to ensure crop production

Watershed Development Projects for Shifting Cultivation Areas)WDPSCA(

Launched during1987 ,1988-The scheme targeted 000 ,25families practicing shifting cultivation and focussed on soil conservation and watershed management in shifting cultivation areas.

National Watershed Development Project for Rainfed Areas(NWDPRA)
focuses on integrated watershed management and sustainable farming systems

Drought Prone Area Programme) DPAP,(

Desert Development Programme) DDP

These flagship programmes of the Ministry of Rural Development were brought under a single umbrella -**Integrated Watershed Management Programme) IWMP (**in 2008to ensure greater intersectoral integration and a dovetailing of strategies.

The **Green India Mission) GIM (**under the **National Action Plan on Climate Change** focuses on sustainable land management and restoration of areas degraded through deforestation ,degradation, over-extraction of fuelwood and fodder and overgrazing. The mission objective is increased forest cover on 5mha of forest/non-forest land and improved quality of forest cover on another 5mha) a total of 10 mha.(

Recent Schemes-

1. **Soil health card scheme**

2. **Pradhan Mantri Krishi Sinchayee Yojana ,**to prevent soil erosion, regeneration of natural vegetation ,rainwater harvesting and recharging of the groundwater table.

3. **National Mission for Sustainable Agriculture)NMS**A (has schemes promoting traditional indigenous practices such as organic farming and natural farming ,thereby reducing dependency on chemicals and other agri-inputs ,and decreasing the monetary burden on smallholder farmers

Way forward

There is a need to strengthen communication channels between academia, policymakers and society for the identification ,management and restoration of degraded soils ,as well as in the adoption of anticipatory measures .These will facilitate the dissemination of timely and evidence-based information to all relevant stakeholders .Greater cooperation and partnerships are central to ensure the availability of knowledge, sharing of successful practices, and universal access to clean and sustainable technologies, leaving no one behind .As consumers and citizens ,we can contribute by planting trees to protect topsoil ,developing and maintaining home/kitchen gardens ,and consuming foods that are mainly locally sourced and seasonal

SCIENCE & TECHNOLOGY

What's Inside?

TRISONIC WIND TUNNEL

Why in news?

The new trisonic wind tunnel at the Vikram Sarabhai Space Centre (VSSC) was inaugurated by conducting the first blow-down test successfully.

About

The trisonic wind tunnel at VSSC is about 160 metres long and measures 5.4 metres at its widest part.The tunnel can simulate flight conditions from 0.2 times the speed of sound (68 metres per second) to four times the speed of sound (1,360 metres per second), according to the space agency. Commissioned in 2017, this tunnel can simulate flow speeds up to Mach 12.

Wind Tunnels

Wind tunnels are large tubes with air blowing through them which are used to replicate the interaction between air and an object flying through the air or moving along the ground. Researchers use wind tunnels to learn more about how an aircraft will fly.

Most of the time, large powerful fans suck air through the tube. The object being tested is held securely inside the tunnel so that it remains stationary. The object can be an aerodynamic test object such as a cylinder or an airfoil, an individual component, a small model of the vehicle, or a full-sized vehicle. The air moving around the stationary object shows what would happen if the object was moving through the air. The motion of the air can be studied in different ways

Trisonic wind tunnel

A Trisonic Wind Tunnel (TWT) is a wind tunnel so named because it is capable of testing in three speed regimes – subsonic, transonic, and supersonic.
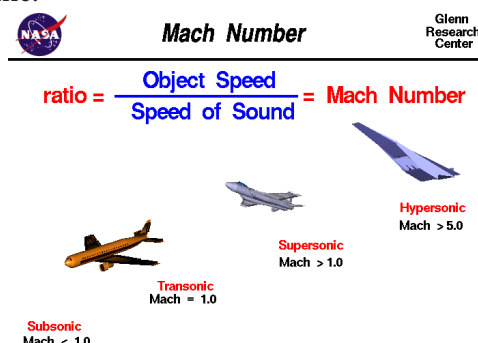
NUCLEAR FUSION

Why in news?

Scientists in the United States have, for the first time, achieved a **net gain in energy from a nuclear fusion reaction**, seen as a big step forward in the decades-old endeavour to master a technology that is considered the most dependable source of energy in future.

About

Nuclear fusion

Nuclear fusion is the process by which two light atomic nuclei combine to form a single heavier one while releasing massive amounts of energy.

Fusion reactions take place in a state of matter called plasma — a hot, charged gas made of positive ions and free-moving electrons with unique properties distinct from solids, liquids or gases.

The sun, along with all other stars, is powered by this reaction. To fuse in our sun, nuclei need to collide with each other at extremely high temperatures, around ten million degrees Celsius. The high temperature provides them with enough energy to overcome their mutual electrical repulsion. Once the nuclei come within a very close range of each other, the attractive nuclear force between them will outweigh the electrical repulsion and allow them to fuse. For this to happen, the nuclei must be confined within a small space to increase the chances of collision. In the sun, the extreme pressure produced by its immense gravity creates the conditions for fusion.

Fusion could generate four times more energy per kilogram of fuel than fission (used in nuclear

power plants) and nearly four million times more energy than burning oil or coal.
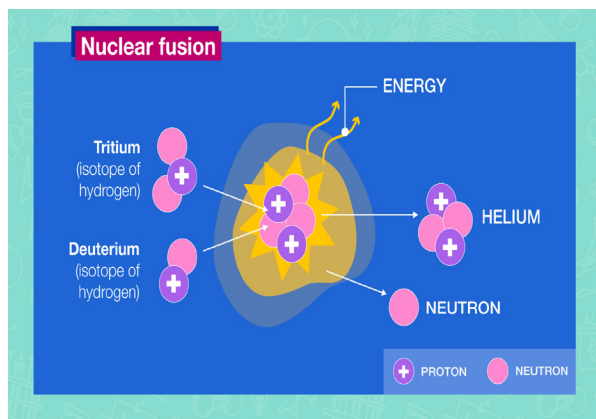
Most of the fusion reactor concepts under development will use a mixture of deuterium and tritium — hydrogen atoms that contain extra neutrons. In theory, with just a few grams of these reactants, it is possible to produce a terajoule of energy, which is approximately the energy one person in a developed country needs over sixty years.

Lawrence Livemore Fusion Experiment

But fusion reactions happen only at very high temperatures, 10 times the temperature that exists at the core of the Sun, and creating such an extreme environment in a laboratory requires huge amounts of energy. **So far, the energy released in such experimental fusion reactions have been lower than what is consumed to create the enabling high temperatures**. At best, some of these reactions have produced 'near break-even' energies. That is why the latest experiment conducted at the **Lawrence Livermore National Laboratory in California** is being considered a big deal.

By all estimates, use of the fusion process for generating electricity at a commercial scale is still two to three decades away. The technology used in the US experiment might take even longer to get deployed.

At the Lawrence Livermore facility, scientists use high-energy laser beams to achieve those temperatures, also called 'inertial fusion'. At some other places, including the international collaborative project in southern France called ITER in which India is a partner, very strong magnetic fields are used for the same purpose.

International Thermonuclear Experimental Reactor

International Thermonuclear Experimental Reactor (ITER) is a collaboration of 35 nations launched in 1985.It is located in France.

It aims to build the world's largest tokamak to prove the feasibility of fusion as a large-scale and carbon-free source of energy.ITER will be the first fusion device to maintain fusion for long periods of time and also to test the integrated technologies, materials, and physics regimes necessary for the commercial production of fusion-based electricity.

The ITER members include China, the European Union, India, Japan, South Korea, Russia and the United States.
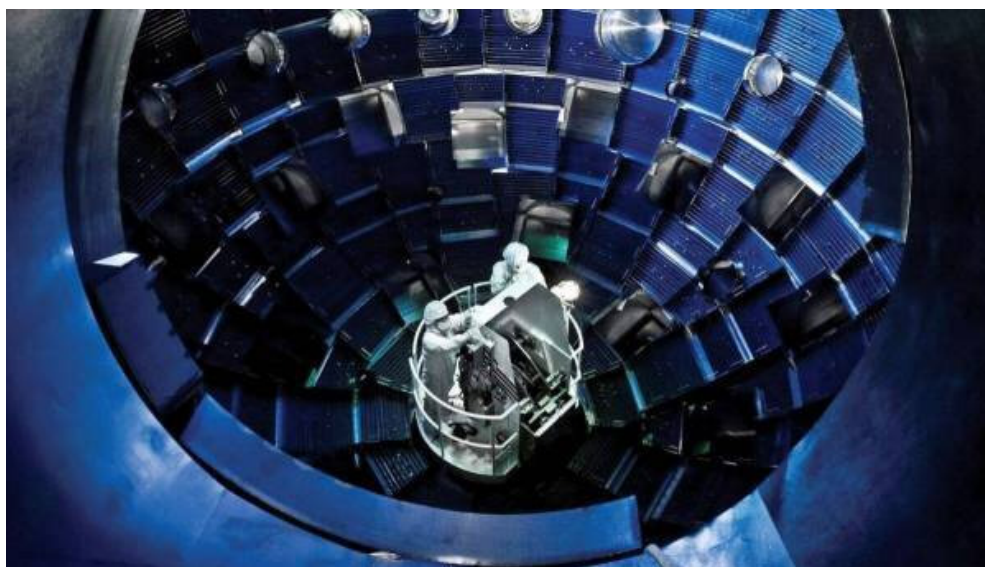
EAST

In 2021 **China's Experimental Advanced Superconducting Tokamak (EAST)** achieved a peak temperature of 288 million degrees Fahrenheit, which is over ten times hotter than the sun.

China is not the only country that has achieved high plasma temperatures. In 2020, South Korea's KSTAR (Korea Superconducting Tokamak Advanced Research) reactor set a new record by maintaining a plasma temperature of over 100 million degrees Celsius for 20 seconds.

Since China is a member of the international ITER project, it is hoped that EAST will provide new impetus for its further development.

Note: Refer Basics on Nuclear Fusion

CERVICAL CANCER

Why in news?

The government will roll out vaccination against cervical cancer for girls aged between nine and 14 through schools.

About

The decision was based on the National Technical Advisory Group for Immunisation (NTAGI) recommendation to introduce the **human papillomavirus (HPV) vaccine** in the Universal Immunisation Programme.

The vaccination will be provided primarily through schools because of the high enrolment of girls. Those girls who are unable to attend school on the day the vaccination campaign is organised will be provided the vaccine at a health facility. Out-of-school girls will be reached through community outreach and mobile teams, according to a statement from the Education Ministry.

India is expected to roll out the indigenously developed CERVAVAC vaccine by mid-2023. The vaccine has received the Drugs Controller General of India's approval and has been cleared by the government advisory panel NTAGI for use in the public health programme.

CERVICAL CANCER

Cervical cancer is a type of cancer that occurs in the **cells of the cervix**. The cervix is the **lower part of the uterus that connects to the vagina**. Cervical cancer is caused by **chronic infection with human papillomavirus** which is a sexually transmitted virus.

There are about hundred different types of human papillomavirus virus but only certain types cause cervical cancer like HPV 16 and HPV 18. A woman with cervical cancer, complaints of unusual or irregular bleeding which occurs in between periods or after sexual intercourse.

Cervical cancer is the **fourth most prevalent cancer** amongst women worldwide and in India, it is the second most common cancer among women.

Vaccines

Three types of vaccines are available for cervical cancer - **Cervarix, gardasil and the latest Gardasil 9**. The vaccine also protects against genital warts and some other cancers also like anal, vulval vaginal, penile, oropharyngeal cancers as well some cancers of head and neck.

Cervavac - Cervavac was developed **indigenously** by the Pune-based **Serum Institute of India** in coordination with the Government of India's **Department of Biotechnology (DBT).**

The Indian vaccine is going to be a game changer to bring down the incidence of cervical cancer because of its **much lower cost**. Two doses spaced at 6 months are enough in 9-14 years age group whereas three dose regimen (0, 1-2, 6 months) are recommended in age group 15-26 years,

INCOVACC

Why in news?

The Centre has approved the cost of Bharat Biotech's nasal COVID-19 vaccine iNCOVACC, which will be used as a booster dose for those above 18 years, at Rs 800 for private hospitals and Rs 325 for the government ones. The vaccine iNCOVACC® will be rolled out in the fourth week of January.

About

iNCOVACC is an intranasal COVID-19 vaccine candidate developed by Bharat Biotech, American company Precision Virologics and the Washington University School of Medicine in St Louis, Missouri, United States.

The **world's first intranasal vaccine**, christened as iNcovacc, is based on a delivery vehicle, a virus, that causes the common cold (adenovirus vector). The spike protein on the virus is the one that attaches to human cells to infect them. The spike protein on the vector is stabilised with appropriate changes, for a stable form at delivery, which is more effective in producing immunity or resistance to a virus.

It is different from Covaxin as the latter is an inactivated (killed) vaccine administered through intramuscular injections. It will be delivered as nasal drops, not as a spray, and to be given as four drops/each nostril, a total of 8 drops in a slow drip process of delivery, rather than a single shot/spray.

In terms of efficacy, intranasal vaccines are more efficacious than intramuscular ones, iNcovacc recipients demonstrated **significant levels of Mucosal IgA antibody levels** (measured in the saliva). Mucosal IgA antibodies in the upper

How some of the different Covid-19 vaccines compare

Technology / company	Suitable for people with weak immune systems	Number of doses	Storage	Other vaccines using this technology
RNA Pfizer-BioNTech Moderna	✓	💉💉	**Pfizer-BioNTech:** -70C and 2-8C for up to 5 days **Moderna:** -20C for 6 months and 2-8C for 30 days	**No other licensed vaccines**
Viral vector Oxford-AstraZeneca CanSino Biologics Gamaleya Research Institute Johnson & Johnson	✓ (Depending on viral vector used)	💉 to 💉💉	2-8C	**Ebola**
'Whole' virus Sinovac (inactivated) Bharat Biotech (inactivated) Sinopharm (inactivated) Medicago Inc. (virus-like particle)	✓	💉💉	2-8C	**Whooping cough (inactivated)** **Rabies (inactivated)** **Hepatitis A (inactivated)** **HPV/cervical cancer (virus-like particle)**
Protein subunit Novavax Chinese Academy of Sciences	✓	💉💉	2-8C	**Hepatitis B**

As of 6 January 2021. Source: Company data/Gavi

respiratory tract may provide benefits in reducing infections and transmission.

Other vaccines

There are four categories of vaccines: WHOLE VIRUS, PROTEIN SUBUNIT, VIRAL VECTOR and NUCLEIC ACID (RNA AND DNA).

- Corbevax - Protein Subunit Vaccine:

- Covavax - Recombinant Nanoparticle Vaccine

- Pfizer and Moderna vaccines developed in the US are mRNA vaccines.

- Johnson & Johnson, Sputnik V and AstraZeneca-Oxford University vaccine is a kind of viral vector vaccine.

- Bharat Biotech's Covaxin and Sinovac-CoronaVac is categorised as an inactivated vaccine.

RADIATION TECHNOLOGIES CONFERENCE

Why in news?

An international conference on 'Radiation Technologies-Challenges and Opportunities for Sustainable Development' will be held at Lulu Bolgatty Convention Centre from January 9 to 12.

About

The conference is organised by the **National Association for Application of Radioisotopes and Radiation in Industry (NAARRI)** in association with the Department of Atomic Energy, India, and the **International Atomic Energy Agency (IAEA), Vienna.**

The conference is featuring scientific sessions on the advancements in radiation technologies in many fields including radiation sterilisation, food irradiation, nuclear medicine, radio diagnosis, and radiotherapy, etc.

NAARRI

National Association for Application of Radioisotopes and Radiation in Industry (NAARRI), a professional body founded in India in 1976 has been a pioneer in reinforcing interaction among atomic energy institutions, innovators and business entrepreneurs engaged in employing radioisotope and radiation technologies for socio-economic benefits.

IAEA- International Atomic Energy Agency

The IAEA is an international organization that seeks to promote the peaceful use of nuclear energy and to inhibit its use for any military purpose, including nuclear weapons.

The IAEA has its headquarters in Vienna, Austria. It was established as an autonomous organisation on 29 July 1957.

Though established independently of the UN through its own international treaty, the IAEA reports to both the UN General Assembly and UN Security Council.

Functions of IAEA

The IAEA serves as an intergovernmental forum for scientific and technical co-operation in the peaceful use of nuclear technology and nuclear power worldwide.

The programs of the IAEA encourage the development of the peaceful applications of nuclear energy, science and technology, provide international safeguards against misuse of nuclear technology and nuclear materials, and promote nuclear safety (including radiation protection) and nuclear security standards and their implementation.

CHATGPT

OpenAI, the company best known for Dall-E — the AI-based text-to-image generator — introduced a new chatbot called ChatGPT. ChatGPT is a 'conversational' AI and will answer queries just like a human would– well, at least that's the promise and premise.

So one can ask ChatGPT for anything; tips on how to set up a birthday party, write an essay on why parliamentary democracy is better, and even a fictional meeting between two well-known personalities.

The reason ChatGPT has gone viral is because of the kind of responses it gives, being seen as a replacement for much of the daily mundane writing, from an email to even college-style essays. But what is ChatGPT and is it a replacement for humans.

What is ChatGPT? How does one sign up?

OpenAI has created ChatGPT, a start-up focused on artificial intelligence and its potential use cases.

OpenAI's notable investors include Microsoft, Khosla Ventures and Reid Hoffman's charitable foundation. Greg Brockman is the company's chairman and president, while Sam Altman is the CEO. Ilya Sutskever is Open AI's chief scientist.

According to OpenAI's description, ChatGPT can answer "follow-up questions", and can also "admit its mistakes, challenge incorrect premises, and reject inappropriate requests."

It is based on the company's GPT 3.5 series of language learning models (LLM).

GPT stands for Generative Pre-trained Transformer 3 and this is a kind of computer language model that relies on deep learning techniques to produce human-like text based on inputs.

The model is trained to predict what will come next, and that's why one can technically have a 'conversation' with ChatGPT. According to OpenAI's blog post about ChatGPT, the chatbot

was also trained using "Reinforcement Learning from Human Feedback (RLHF)."

Currently, it is open in beta to all users. One can go to the OpenAI website and sign up to try out ChatGPT.

However, you will need to create an account with OpenAI to access this service.

The chatbot has already crossed one million users, and you might get a message that the beta is full.

OpenAI CEO Sam Altman also hinted they might have to monetise this in the future due to the high costs of running these chats. OpenAI uses Microsoft Azure's cloud infrastructure to run these models.

Interestingly, ChatGPT has been trained to decline 'inappropriate' requests, presumably those which are 'illegal' in nature.

However, it should be noted that ChatGPT has limitations, as it may generate incorrect information, and create "biased content." More importantly, the chatbot's knowledge of the world and events after 2021 is limited.

Why has ChatGPT generated so much buzz?

The reason ChatGPT has generated so much discussion is because of the kind of answers it gives.

It is being seen as a replacement for the basic emails, party planning lists, CVs, and even college essays and homework. It can also be used to write code,as examples have shown.

Some screenshots shared on Twitter showed how the chatbot could be used to write four-page essays, solve math equations, and even spot errors incode.

However, the AI's responses are not without flaws, something even OpenAi admits.

It notes that the chatbot sometimes could give "plausible-sounding but incorrect or nonsensical answers." Users have the option of downvoting or

upvoting a response.

OpenAI also notes that the chatbot can sometimes overuse certain phrases due to "biases in the training data…"

So will ChatGPT replace humans when it comes to writing?

The chatbot gives answers which are grammatically correct and read well– though some have pointed out that these lack context and substance, which is largely true.

Is ChatGPT capable of writing fiction?

Yes, but not at the level of a humans, at least not for now. Nor is OpenAI the only company trying to get AI to take over writing.

Google had recently showcased how its LaMDA chatbot is being used to help with fiction writing, but it too admitted that this was only a helper right now and cannot take over the entire task.

Still, ChatGPT showcases an interesting and exciting use case for AI, where humans can have a 'real' conversation with a chatbot

DOWN'S SYNDROME

Down syndrome is a genetic disorder, a defect in the body caused by an arising out of an extra chromosome.

Normal babies have 46 chromosomes in the body whereas babies with down syndrome have 47 chromosomes and the chromosome number 21 or trisomy is the extra one.

This disorder results in mental retardation, growth delays, and many other physical illnesses.

It is a common genetic problem in children and with an early diagnosis and treatment of the condition, the quality of living of kids can be improved to a great degree.

According to the United Nations, World Down Syndrome Day, which is a global awareness day is observed every year on March 21 as it signifies the uniqueness of the 21st chromosome, which causes the disorder.

Symptoms

Babies with Down Syndrome have specific traits and development issues, says Dr Sawhney.

There are a few abnormalities — the most common one being abnormal facial features, popularly known as dysmorphic features.

Down syndrome patients usually have upslanted eyes, flat nose, unusually formed ears, protruding tongue, short height, neck, and hands.

They also have a single crease across the hand where normal people have two creases.

Their muscle tone is weak which results in sitting difficulties and IQ is borderline, between 50-70, whereas, normal babies have 75-80. But they are very friendly children, and usually good with music.

Later, as these babies grow up, they may develop other problems like joint and thyroid problems.

About 40-45 percent Down Syndrome patients have congenital heart disease. Furthermore, their intestines may not be properly formed and also face eyesight problems and hearing loss.

Causes

Parents who have a greater risk of having babies with Down Syndrome include:

Children born to mothers whose age is 35 or above. With increasing age, the eggs grow older and the risk of abnormal chromosome division becomes greater.

If one child is born with this condition, there's a high risk of the second being born with the same disorder.

Diagnosis and treatment

Performing tests and ultrasound screening during the early stages of pregnancy are ways to diagnose the disorder, says Dr Garg.

A mother can opt out of pregnancy if she wants to. Another process is through Amniocentesis, a process in which amniotic fluid from the mother's womb

is sampled to screen for any abnormality in the developing fetus.

If not diagnosed before birth, then one can

identify the symptoms on the facial appearance of the new born or a chromosomal analysis of the baby can be carried out.

Though it cannot be treated fully, an early diagnosis can create a huge difference in the life of children.

Furthermore, one needs to rely on a team of specialists who will monitor all the health issues of a Down Syndrome patient and will help the child in his/her development.

ZOMBIE VIRUS

European researchers have raised concerns of yet another pandemic after resurrecting a 48,500-year-old 'Zombie Virus' from a frozen lake in Russia.

The researchers warned that Climate change-induced thawing of the permanently frozen land (permafrost) in the Arctic could pose a new public health threat.

About Zombie Virus:

13 new pathogens have been characterized, what are termed 'Zombie Viruses', which remained infectious despite spending many millennia trapped in the frozen ground.

The virus emerged due to the thawing of permafrost as the global temperature is rising.

Causes

One-quarter of the Northern hemisphere is underlain by permanently frozen ground, referred to as permafrost.

Due to climate warming, irreversibly thawing permafrost is releasing organic matter frozen for up to a million years, most of which decomposes into carbon dioxide and methane, further enhancing the greenhouse effect.

Part of this organic matter also consists of revived cellular microbes (prokaryotes, unicellular eukaryotes) as well as viruses that remained dormant since prehistoric times.

Potential Impact

All of the "zombie viruses" have the potential to be infectious and hence pose a "health danger" after researching the live cultures.

It is believed that pandemics like Covid-19 will become more common in the future as melting permafrost releases long-dormant viruses like a microbial Captain America.

BRAIN EATING AMOEBA

Why in news?

South Korea reported its first case of infection from Naegleria fowleri or "brain-eating amoeba. The authorities said a 50-year-old Korean national, who had recently returned from Thailand, died 10 days after showing symptoms of the rare yet fatal infection.

About

Naegleria is an amoeba, a single-celled organism, and only one of its species, called Naegleria fowleri, can infect humans,

It was first discovered in Australia in 1965 and is commonly found in warm freshwater bodies, such as hot springs, rivers and lakes.

How does it infect humans?

The amoeba enters the human body through

the nose and then travels up to the brain. This can usually happen when someone goes for a swim, or dive or even when they dip their head in a freshwater body.

In some cases, it was found that people got infected when they cleaned their nostrils with

contaminated water. Scientists haven't found any evidence of the spreading of Naegleria fowleri through water vapour or aerosol droplets.

Once Naegleria fowleri goes to the brain, it destroys brain tissues and causes a dangerous infection known as **primary amebic meningoencephalitis (PAM)**.

Symptoms

In the initial stages, they might be similar to symptoms of meningitis, which are headache, nausea and fever. In the later stages, one can suffer from a stiff neck, seizures, hallucinations, and even coma.

Treatment

At present, doctors treat it with a combination of drugs, including amphotericin B, azithromycin, fluconazole, rifampin, miltefosine, and dexamethasone.

Impact of Climate change

With the rising global temperatures, the chances of getting Naegleria fowleri infection will go up as the amoeba mainly thrives in warm freshwater bodies. The organism best grows in high temperatures up to 46°C and sometimes can survive at even higher temperatures.

WALLABY

Why in news?

The WALLABY (The Widefield ASKAP L-band Legacy All-sky Blind surveY) Pilot Survey will be sharing its first data release with the scientific community, helping us to better understand nearby galaxies and galactic clusters.

About

WALLABY, or the **Widefield ASKAP L-band Legacy All-sky Blind survey**, is a **radio telescope** in Western Australia that is helping astronomers build a three-dimensional map of the night sky, mapping galaxies as far as a billion light years away.

It is a next-generation survey of the 21 cm radio emission from **neutral hydrogen (HI)** in the Local Universe. It is hosted by the Australian Square Kilometer Array Pathfinder (ASKAP) telescope

It will help the researchers to measure the dark-matter distribution, the internal motion of galaxies and how these systems evolve and interact.

Neutral Hydrogen

Neutral hydrogen is a normal, electrically neutral hydrogen atom with one proton and one electron. It is commonly referred to as HI (pronounced H-one), and is located throughout galaxies as HI clouds or external to galaxies as part of the intercloud gas . It is detected via the spin-flip transition at 21cm in the radio, and HI clouds were used to determine the structure of our Galaxy from our location within it.

Radio telescope

A radio telescope is similar to an optical telescope; however, instead of gathering light, the instrument gathers radio waves. Radio waves from space have a much longer wavelength than light, so radio telescopes need to be much larger than optical telescopes to achieve a similar resolution
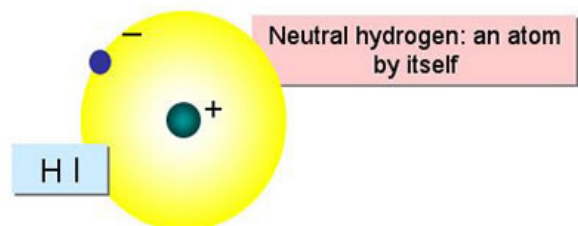
UNCONTROLLED RE-ENTRIES OF SATELLITES

Outer Space Institute (OSI) has called for both national and multilateral efforts to restrict uncontrolled re-entries of Satellites. OSI is a conservation organization that seeks to preserve scenic, natural and historic landscapes for public enjoyment, conserve habitats while sustaining community character, and help protect the environment. It uses policy initiatives and ground-level activism to help accomplish its goals.

Stages of a Rocket Launch:

Primary Stage: The primary stage of a rocket is the first rocket engine to engage, providing the initial thrust to send the rocket skyward. This engine will continue to operate until its fuel is exhausted, at which time it separates from the rocket and falls to the ground.

Secondary Stage: After the primary stage has fallen away, the next rocket engine engages to continue the rocket on its trajectory. The second stage has considerably less work to do, since the rocket is already traveling at high speed and the rocket's weight has significantly decreased due to the separation of the first stage. If the rocket has additional stages, the process will repeat until the rocket is in space.

Payload: Once the payload, whether it be a satellite or a spacecraft, is in orbit, the rocket's final stage falls away, and the craft will be maneuvered using smaller rockets whose purpose is to guide the spacecraft. Unlike the main rocket engines, these maneuvering rockets can be used multiple times.

Uncontrolled Re-entry:

In an uncontrolled re-entry, the rocket stage simply falls. Its path down is determined by its shape, angle of descent, air currents and other characteristics. It will also disintegrate as it falls. As the smaller pieces fan out, the potential radius of impact will increase on the ground. Some pieces burn up entirely while others don't. But because of the speed at which they're travelling, debris can be deadly.

As per a 2021 report of the International Space Safety Foundation, an impact anywhere on an airliner with debris of mass above 300 grams would produce a catastrophic failure, meaning all people on board would be killed. Most rocket parts have landed in oceans principally because earth's surface has more water than land. But many have dropped on land as well.

As the smaller pieces fan out, the potential radius of impact will increase on the ground. Some pieces burn up entirely while others don't. But because of the speed at which they're travelling, debris can be deadly. If re-entering stages still hold fuel, atmospheric and terrestrial chemical contamination is another risk.

There is no international binding agreement to ensure rocket stages always perform controlled re-entries nor on the technologies with which to do so. The Liability Convention, 1972 requires countries to pay for damages, not prevent them. These technologies include wing-like attachments, de-orbiting brakes, and extra fuel on the re-entering body, and design changes that minimise debris formation.

DIETHYLENE GLYCOL

After the death of 66 children in Gambia, the World Health Organization (WHO) has urged the people to not use four India-manufactured fever, cough and cold syrups.

Diethylene glycol (DEG) and Ethylene glycol both are sweet-tasting, colourless, odourless liquid commonly used in the commercial preparation of antifreeze. Ethylene glycol is used in the **production of polyester fibres, paints and polyethene terephthalate (PET).** DEG because of its hygroscopic property, is used in **brake fluid, cigarettes, treatment of paper and some dyes.** It is an excellent solvent for many relatively insoluble substances.

Diethylene glycol was **used as an illegal adulterant in medications** and could result in renal and neurological toxicity. Because of its toxicity, it is not allowed in food or drugs. Due to its solubility, drugmakers have inappropriately substituted it for non-toxic ingredients such as glycerine in pharmaceuticals such as cough syrups and acetaminophen. Acute kidney failure is the number one cause of death in poisoning cases, and it starts between eight and 24 hours after exposure to lethal doses of the substance. If people don't get treatment, symptoms progress to multi-organ failure in two to seven days.

SECURITY

What's Inside?

1. AGNI-V BALLISTIC MISSILE
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3. INS MORMUGAO
4. IAF BRAHMOS MISSILE
5. DRAFT CYBER SECURITY STRATEGY
6. INDIA-CHINA CLASH AT TAWANG
7. DRONE INSURANCE
8. ANTI-MARITIME PIRACY BILL
9. PATRIOT MISSILE SYSTEM

AGNI-V BALLISTIC MISSILE

Why in news?

India has successfully carried out the night trials of the Agni-5 nuclear-capable ballistic missile

About

Agni-5 is an **ingeniously built advanced surface-to-surface ballistic missile** developed under the Integrated Guided Missile Development Programme (IGMDP). It is a fire-and-forget missile, which cannot be stopped without an interceptor missile.

The **Integrated Guided Missile Development Programme (IGMDP)** is the brain-child of Dr. A.P.J. Abdul Kalam, who aimed at making the country self-sufficient in the field of missile technology. The program had five missiles **P-A-T-N-A, Prithvi, Agni, Trishul, Nag, and Akash.**

Ballistic missile vs. Cruise missile

Specifications of Agni V

Used by	Strategic Forces Command
Designer	Defence Research and Development Organisation
Manufacturer	Bharat Dynamics Limited
Engine	Three-stage solid rocket
Propellant	Solid fuel
Operational range	7,000–8,000 kilometres (4,300–5,000 mi)

India's Nuclear Triad

Nuclear Triad essentially has three major components-the strategic bombers, Inter Continental Ballistic Missiles (ICBMs) and Submarine Launched Ballistic Missiles (SLBMs) for the purpose of delivering a nuclear weapon. The reason for having such three branched capability is to significantly reduce the possibility of the destruction of the entire nuclear architecture of the state in the first nuclear strike by the enemy itself.
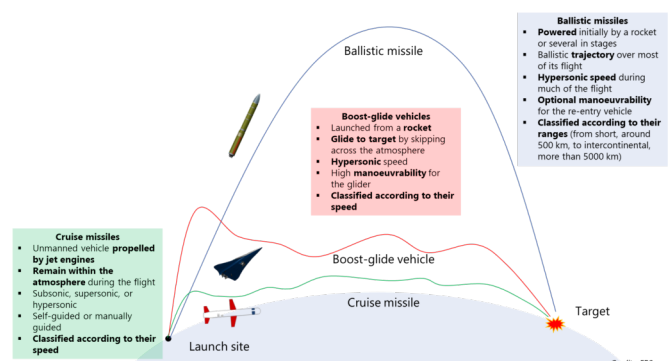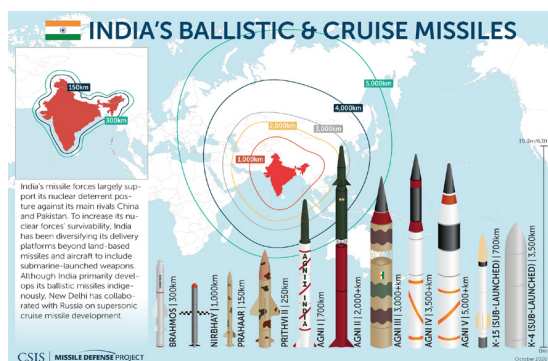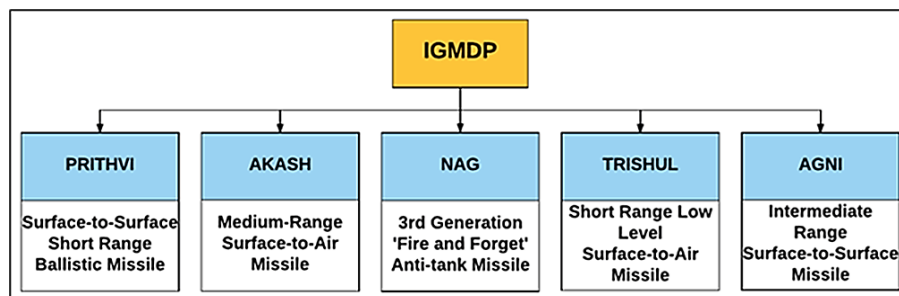
Land Based	Sea Based	Air Based
Prithvi (SS-250)	Arihant class submarine	Jaguar (Shamsher) Mig-27 (Flogger) Mig-29K Su-30MKI-III Dassault Mirage 2000H/TH
Prithvi-2	Arighat class submarine	
Agni	K4 missiles	
Agni-I	S4 submarines	
Agni-II	S5 submarine	
Agni III		
Agni-IV		
ICBM		
Agni-V		
SLBM		
Sagarika (K-15)		
Cruise		
Brahmos Supersonic		

DARK PATTERNS

Why in news?

The 'dark patterns' used by Epic Games led to the largest Federal Trade Commission penalties ever

About

Technologist Harry Brignull coined the term in 2010 to codify **"manipulative or deceptive design decisions"** that aim to get end users to take some sort of action that they might not have taken of their own free will.

Certain subscription services, for example, have been accused of using dark patterns to discourage people from deleting their accounts once their free trials have expired. Others have slapped the dark-pattern label on ads that disguise themselves as independent content in order to goad a web surfer into clicking.

Dark patterns endanger the experience of Internet users and make them more vulnerable to financial and data exploitation by Big Tech firms. Dark patterns confuse users, introduce online obstacles, make simple tasks time-consuming, have users sign up for unwanted services/products, and force them to pay more money or share more personal information than they intended.

These include "baseless" countdowns for online deals, conditions in fine print that add on to costs, making cancellation buttons hard to see or click, making ads appear as news reports or celebrity endorsements, auto-playing videos, forcing users to create accounts to finish a transaction, silently charging credit cards after free trials end, and using dull colours to hide information that users should know about.

Examples

In the screenshot you can see how the 'add to basket with donation' green button appears to suggest moving forward to the next stage of the checkout. The colourless 'without donation' button points backward, leaving the unobservant user to assume this is some sort of back arrow to return to a previous page.

Common Types of Dark Patterns

Bait and Switch
1
When information says something else and a different action gets performed upon clicking

Hidden Costs
2
The cost shown is different initially, but increases as the buyer moves ahead with the payment

Forced Continuity
3
Having to give information or card details to move ahead with using the website, a product, or a service

Confirm Shaming
4
When manipulative content is used to changes user action

Disguised Ads
5
When a ad banner looks similar to a useful button such as a download button, but a different action is performed when you click on it

Roach Motel
6
Entering is easy, exit is equally tricky, i.e., subscription is easy, cancelling is difficult

Asking More than Intended
7
Asking information from a user more than what they intend to tell in the name of knowing your users

Triggering Fear
8
When a user is asked to not opt-out of a subscription or a feature selection as it can lead to negative consequences

Social Proof
9
When you influence user actions and behavior by telling them a success story of other similar users

Triggering FOMO
(Fear of Missing Out)
10
This is prevalent on the eCommerce websites where a user is told "Only a few left," to trigger a purchase action

net solutions

INS MORMUGAO

Why in news?

The second of the Project 15B stealth-guided missile destroyers built by Mazagon Dock Shipbuilders Limited (MDSL), INS Mormugao (Pennant D67), was commissioned into the Indian Navy on Sunday. The ship, named after a key port in Goa, was commissioned a day before the Goa Liberation Day celebrations.

About

Project 15 B

The **Visakhapatnam-class destroyers**, also classified as the **P-15 Bravo class**, or simply P-15B, is a class of **guided-missile destroyers** currently being built for the Indian Navy.

The Visakhapatnam class is an upgraded derivative of its predecessor, **the Kolkata class**, with improved features of stealth, automation and ordnance.

Designed by the **Warship Design Bureau (WDB)**, a total of four ships are being built by **Mazagon Dock Limited (MDL)**, under the Make in India initiative.[7] The first vessel of the class, INS Visakhapatnam was commissioned on 21 November 2021

The four vessels - INS Visakhapatnam , INS Mormugao, INS Imphal, INS Surat

Notably, INS Imphal and INS Mormugao were the first two destroyers to be christened as namesakes of important cities from the regions of Northeastern India and Goa, respectively.

The Visakhapatnam class destroyers have **multiple fire zones, battle damage control systems, and distributional power systems** for improved survivability and reliability in extreme operational and conflict scenarios.

They have a **total atmospheric control system (TACS)** that offers protection to the crew from chemical, biological, and nuclear threats, as well as a state-of-the-art combat management system

The destroyer will also be armed with **indigenously developed 533 mm torpedo launchers and RBU-6000** anti-submarine rocket launchers. It can operate two multi-role helicopters — **Sea King or HAL Dhruv**. The ship also has rail-less helicopter traversing, and a hangar facility.

The '**combined gas and gas' (COGAG) configuration** integrates four gas turbines. The propulsion system allows the ship to reach a

INS Mormugao

maximum speed of 30 knots (55 km/h), and a maximum range of 4,000 nautical miles (7,400 km).

Goa Liberation Day

The day marks the occasion when the Indian armed forces freed Goa in 1961 from 450 years of Portuguese rule.

The Goa liberation movement started off with small scale revolts, but reached its peak between 1940 to 1960.

In 1961, after the failure of diplomatic efforts with Portuguese, the Indian Government launched Operation Vijay and annexed Daman and Diu and Goa with the Indian mainland on 19th December.

On 30th May 1987, the territory was split and Goa was formed. Daman and Diu remained a Union Territory.

Hence, 30th May is celebrated as the Statehood Day of Goa.

IAF BRAHMOS MISSILE

The Indian Air Force (IAF) successfully test fired the Extended Range Version of Brahmos Air Launched missile against a ship target from a frontline SU-30MKI aircraft.

The maiden test of the extended range of the Brahmos Air Launched missile was conducted on May 12 earlier this year, the force said.

A statement from the IAF, "The missile achieved the desired mission objectives in the Bay of Bengal region.

With this, IAF has achieved a significant capability boost to carry out precision strikes from SU-30MKI aircraft against land or sea targets over very long ranges.

The extended range capability of the missile coupled with the high performance of the SU-30MKI aircraft gives the IAF a strategic reach and allows it to dominate the future battlefields

The dedicated and synergetic efforts of the IAF, Indian Navy, DRDO, Brahmos Aerospace Pvt Ltd and HAL have been instrumental in achieving this feat, the statement said.

While the Air Launched version of the BrahMos Supersonic Cruise Missile has been tested multiple times in the recent past, the Extended Range Version which is said to have capability of striking the targets located at around 350 kilometre compared to around 290 kilometre for the initial version.

First test of the initial version of the Brahmos Air Launched Cruise Missile was conducted in 2017, making it a significant addition to the IAF's operational capabilities from stand-off ranges.

tand-off range missiles are the ones which are launched at a distance sufficient to allow the attacking party to evade defensive fire expected from the target area. For the firing of Brahmos from Sukhoi-30 MKI, the missile is gravity dropped from the fuselage of the fighter jet, and the two-stage missile's engine is then fired up and it propels towards the intended target at the sea.

Brahmos is the heaviest weapon to be deployed on India's Sukhoi-30 MKI fighter aircraft, which has been modified by HAL to carry these weapon systems.

A combination of the names of Brahmaputra and Moskva rivers, BrahMos missiles are designed, developed and produced by BrahMos Aerospace, a joint venture company set up by Defence Research and Development Organisation (DRDO) and Mashinostroyenia of Russia.

The first test launch of the initial version Brahmos took place in 2001. Various types of the BrahMos, including those which can be fired from land, warships, submarines and Sukhoi-30 fighter jets have already been developed and successfully tested and inducted since then.

Cruise missiles such as BrahMos, called "standoff range weapons", are fired from a range far enough to allow the attacker to evade defensive counter-fire.

These are in the arsenal of most major militaries in the world. The BrahMos has three times the speed, 2.5 times flight range and higher range compared to subsonic cruise missiles.

DRAFT CYBER SECURITY STRATEGY

The National Security Council Secretariat (NSCS) has formulated a draft National Cyber Security Strategy, which holistically looks at addressing the issue of security of national cyberspace, said the government in the Lok Sabha Security tips have been published for users to secure their desktops and mobile phones and to

prevent phishing attacks.

CERT-In operates the *Cyber Swachhta Kendra (Botnet Cleaning and Malware Analysis Centre)* "to detect malicious programmes and free tools to remove the same, and to provide cyber security tips and best practices for citizens and organisations"

The organisation regularly disseminates information and shares tips on cyber safety and security through its official social media handles and websites.

CERT-In and the Reserve Bank of India [RBI] jointly carry out a cyber security awareness campaign on 'Beware and be aware of financial frauds' through the Digital India Platform. The Ministry also carries out awareness programmes.

The *Indian Cyber Crime Coordination Centre (I4C),* under the Ministry of Home Affairs (MHA), has been designated as the nodal point in the fight against cybercrime.

The RBI has issued various instructions in respect of security and risk-mitigation measures related to electronic/digital transactions.

The Ministry said pursuant to the United Nations General Assembly resolution 75/282, adopted in May 2021, an ad-hoc committee to elaborate a 'Comprehensive International Convention on Countering the Use of Information and Communications Technologies for Criminal Purposes' was established with all the member states.

As a member of the committee, India has proposed criminalisation of cyber terrorism under the said Convention.

In reply to another question by MP Manish Tewari, the government said this year, till November, a total of 12,67,564 cyber security incidents were reported.

In 2021, the authorities had recorded 14,02,809 such events compared to 11,58,208 in 2020 and 3,94,499 in 2019.

The MHA has issued National Information Security Policy and Guidelines to the Central Ministries as well as State governments and Union Territories with the aim of preventing information security breaches and cyber intrusions in the information and communication technology infrastructure Ladakh demand for 6th schedule.

What is the Sixth Schedule?

The Sixth Schedule under *Article 244 provides for the formation of autonomous administrative divisions* — Autonomous District Councils (ADCs) — that have some legislative, judicial, and administrative autonomy within a state.

ADCs have up to 30 members with a term of five years, and can make laws, rules and regulations with regard to land, forest, water, agriculture, village councils, health, sanitation, village- and town-level policing, inheritance, marriage and divorce, social customs and mining, etc. The Bodoland Territorial Council in Assam is an exception with more than 40 members and the right to make laws on 39 issues.

The *Sixth Schedule applies to the Northeastern states of Assam, Meghalaya, Mizoram (three Councils each), and Tripura (one Council).*

Why does Ladakh want to be part of the Sixth Schedule?

Buddhist-dominated Leh district had long demanded UT status because it felt neglected by the erstwhile state government, which was dominated by politicians from Kashmir and Jammu.

But the act provided that UT of J&K would have a legislature, the UT of Ladakh would not.

There had been four MLAs from the region in the erstwhile J&K Assembly; the administration of the region is now completely in the hands of bureaucrats.

To many in Ladakh, the government now looks even more distant than Srinagar.

Also, the changed domicile policy in Jammu and Kashmir has raised fears in the region about its own land, employment, demography, and cultural identity.

The UT has two Hill councils in Leh and Kargil, but neither is under the Sixth Schedule. Their powers are limited to collection of some local taxes such as parking fees and allotment and use of land vested by the Centre.

INDIA-CHINA CLASH AT TAWANG

Recently, Indian and Chinese troops clashed along the Yangtse river in the *Tawang sector* in Arunachal Pradesh.

According to the India Army, there are certain areas along the *Line of Actual Control (LAC)* in the Tawang Sector that are areas of differing perception.

The incident came days after China expressed objection to **Operation Yudhabhyas, an India-US joint military exercise** at Auli in the Uttarakhand hills, claiming it was a violation of 1993 and 1996 border agreements.

Arunachal Pradesh, known as the Northeast Frontier Agency (NEFA) until 1972, is the largest state in the northeast and shares international borders with Tibet to the north and northwest, Bhutan towards the west and Myanmar to the east.

The state is like a protective shield to the northeast. However, *China claims Arunachal Pradesh as a part of southern Tibet.*

And while China may lay claim to the entire state, its main interest lies in the district of Tawang, which is in the north-western region of Arunachal and borders Bhutan and Tibet.
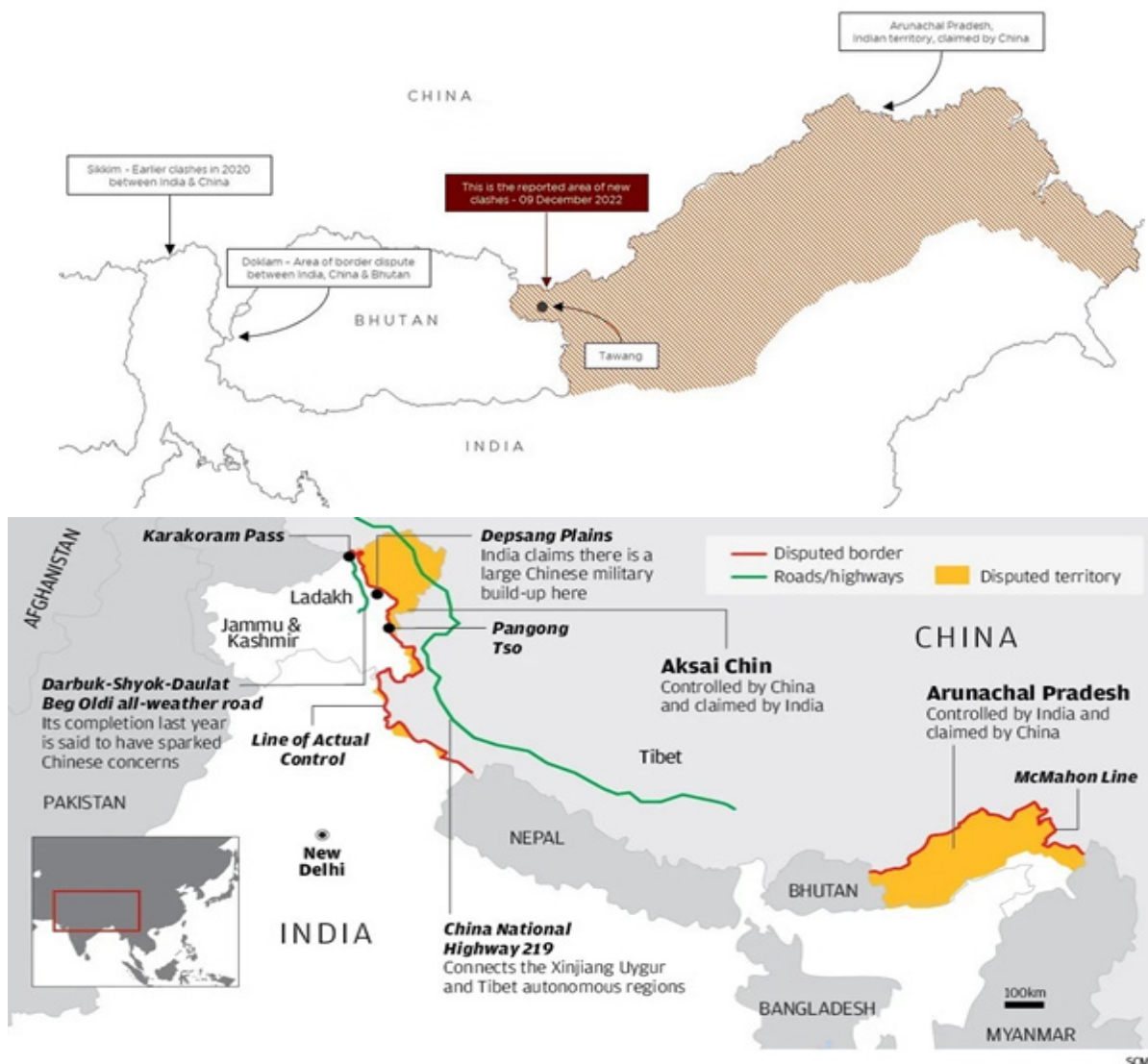
DRONE INSURANCE

Insurance players are now offering drone coverage within the framework set by the Insurance Regulatory and Development Authority of India (IRDAI).

An unmanned aerial vehicle, commonly known as a drone, is an aircraft without any human pilot, crew or passengers on board. UAVs are a component of an unmanned aircraft system, which include additionally a ground-based controller and a system of communications with the UAV.

Drones have been divided into **five categories based on their weight** (existing rules)-Nano : Less than or equal to 250 grams, Micro : From 250 grams to 2kg, Small : From 2 kg to 25kg, Medium : From 25kg to 150kg, Large : Greater than 150kg.

Drone flying restrictions in India

A micro drone may not fly higher than 60 metres above ground level (AGL) or faster than 25 metres per second. A small drone may not fly higher than 120 metres above ground level or faster than 25 metres per second. Drones that are medium or large must fly in compliance with the conditions outlined in the DGCA's Operator Permit. Prohibited zones are completely off-limits, whereas **restricted areas require prior approval from the DGCA.**

Drone market in India:

Drones and allied component industries can boost India's manufacturing potential by approximately $23 billion by 2030. India's drone manufacturing industry crossed annual sales of Rs 60 crore in FY 2021 and is expected to grow to Rs 900 crore by FY 2024.

Highlights of the drone insurance policy:

Regulation: Insurance players are now offering drone coverage within the framework set by the Insurance Regulatory and Development Authority of India (IRDAI).

Participants: It will cover large aircraft to solo flying gliders and also, it will be offered to drone owners, operators, and manufacturers.

Third-party liability coverage: It will cover legal liabilities like bodily damage or property damage claims to third parties arising out of the usage and operation of drones.

Policy coverage: The policy covers physical damage to the aircraft and its theft.

It also provides cover for accidental physical injury to the third party and/or damage to their property due to the aircraft's operations. It is designed to cover fixed wing, rotor wing and hybrid UAS that can be controlled remotely (with pilot intervention) or autonomous drones (without pilot intervention). These aircraft are generally deployed for military and non-military applications, including surveillance, geography and infrastructure inspections and aerial photography. It will provide coverage for the replacement or repair, accidental loss of or damage to the UAS arising from the risks covered, including disappearance if the UAS is unreported after the commencement of Flight.

ANTI-MARITIME PIRACY BILL

Recently, Rajya Sabha passed the Anti-Maritime Piracy Bill which the government said would provide an effective legal instrument to combat Maritime Piracy. The security of sea lanes of communication is critical as *more than 90% of India's trade takes place by sea routes and more than 80% of the country's hydrocarbon requirements was sea-borne.*

Need for the bill:

IPC is not valid for foreigners in international waters: Previously, pirates were prosecuted under the Indian Penal Code, 1860 (IPC). However, India's sovereignty is delimited by the outer boundary of its territorial waters— 12 nautical miles from the coast. Acts of piracy committed by a foreigner outside India's territorial waters

cannot be an offence under the IPC, and those accused in piracy cases have been acquitted due to the lack of jurisdiction.

Features of the Bill:

The Bill provides for prevention of maritime piracy and prosecution of persons for such piracy-related crimes. It will **apply to all parts of the sea adjacent to and beyond the limits of the Exclusive Economic Zone** of India, i.e., beyond 200 nautical miles from the coastline. The Bill brings into law the **United Nations Convention on the Law of the Sea (UNCLOS).**

It defines piracy as any illegal act of violence, detention, or destruction committed against a ship, aircraft, person or property, for private purposes, by the crew or passengers of a private ship or aircraft. Such acts may be carried out in the high seas (beyond the Exclusive Economic Zone of India) or any place outside the jurisdiction of India; Inciting or intentionally facilitating such acts would also qualify as piracy. It includes any other act that is considered as piratical under international law. Piracy also includes voluntary participation in the operations of a pirate ship or aircraft used for piracy.

Penalties:

An act of piracy will be punishable with: Imprisonment for life; or Death, if the act of piracy causes or attempts to cause death. An attempt to commit, aid, support, or counsel an act of piracy will be punishable with up to 14 years of imprisonment, and a fine. Participating, organising, or directing others to participate in an act of piracy will also be punishable with up to 14 years of imprisonment, and a fine.

Offences will be considered extraditable. This means that the accused can be transferred to any country for prosecution with which India has signed an extradition treaty. In the absence of such treaties, offences will be extraditable on the basis of reciprocity between the countries.

The central government, in consultation with the Chief Justice of the concerned High Court, may notify Sessions Courts as the Designated Courts under this Bill. The Designated Court will try offences committed by: A person in the custody of the Indian Navy or Coast Guard, regardless of his nationality; A citizen of India, a resident foreign national in India, or a stateless person. The Court will not have jurisdiction over offences committed on a foreign ship unless an intervention is requested by the country of origin of the ship, the ship-owner, any other person on the ship. Warships and government-owned ships employed for non-commercial purposes will not be under the jurisdiction of the Court.

Issues with the Bill:

It is unclear how the overlap of the 14-year term and the life term will be determined since committing an act of piracy will necessarily include participation as well. The **issue with the death penalty:** Supreme Court of India has advocated for the use of extreme punishment in the "rarest of rare" According to the top court, the death penalty violates Articles 14 and 21 of the Constitution.

PATRIOT MISSILE SYSTEM

Recently, the U.S. announced that it would send the Patriot, its **most advanced ground-based air defence system, to Ukraine.**

The Patriot (Phased Array Tracking Radar to Intercept on Target). Initially developed as a system to intercept high-flying aircraft, by U.S. aerospace and defence giant Raytheon Technologies Corp. The Patriot system's radar has a range of over 150 km and it can track over 50 potential targets at the same time. It doesn't offer protection against low-flying small drones.

Currently, **Patriot batteries can defend against ballistic missiles, cruise missiles, drones, jets and "other threats".** It has been deployed in 18 countries, including the U.S. It is operational across NATO geography. It is in high demand in West Asia, where America's allies such as Saudi Arabia, the UAE and Israel have been using it.

HISTORY

ART & CULTURE

NEW PRODUCTS GET GI TAG

Why in news?

The Union government has granted the Geographical Indication (GI) tag to 9 products from across the country

About

5 PRODUCTS FROM KERALA

With the latest five GIs, 17 agricultural products of Kerala facilitated by the Kerala Agricultural University have received the GI status.

Attappady Attukombu Avara

Attappady Attukombu Avara, cultivated in the Attappady region of **Palakkad**, is curved like a goat's horn as its name indicates.

Its higher **anthocyanin content** compared to other dolichos beans imparts violet colour in the stem and fruits.

Anthocyanin is helpful against cardiovascular diseases along with its antidiabetic properties. Other than this, calcium, protein, and fibre content are also high.

The **higher phenolic content** of Attappady Attukombu Avara imparts resistance against pest and diseases, making the crop suitable for organic cultivation.

Attappady Thuvara

Attappady Thuvara is having seeds with white coat.

Compared to other red grams, Attappady Thuvara seeds are bigger and have higher seed weight.

This delicious red gram, which is used as vegetable and dal, is rich in protein, carbohydrate, fibre, calcium and magnesium.

Kanthalloor Vattavada Veluthulli

Compared to the garlic produced in other areas, the **garlic** from the Kanthalloor-Vattavada area of Devikulam block panchayat in Idukki contains **higher amount of sulphides, flavonoids, and proteins.**

It is rich in **allicin**, which is effective against microbial infections, blood sugar, cancer, cholesterol, heart diseases, and damages to blood vessels.

The garlic cultivated in this area is also rich in essential oil.

Onattukara Ellu

The Onattukara region was once known for its **sesame cultivation** and production

Onattukara Ellu and its oil are famous for its

unique health benefits.

Relatively higher **antioxidant content** in Onattukara Ellu helps in fighting the free radicals, which destroy the body cells.

Also, the high content of **unsaturated fat** makes it beneficial for heart patients.

Kodungalloor Pottuvellari

Kodungalloor Pottuvellari cultivated in Kodungalloor and parts of Ernakulam is consumed as juice and in other forms.

It contains high amount of Vitamin C. Compared to other cucurbits, nutrients such as calcium, magnesium, fibre and fat content are also high in Kodungalloor Pottuvellari.

Gamosa of Assam

The traditional Assamese Gamosa/Gamusa or Gamucha is one of the most recognisable cultural symbols of Assam.

It is a **white rectangular piece of cloth with embroidered red borders**. While it has a lot of uses, it is mostly used as an article presented to guests, elders, family or friends on special occasions as a

sign of respect. No important ceremony or event is complete without the Gamosa.

The red border is called the "anchu" and is believed to be the sign of Ahom strength. "Anchu" was derived from a certain red flower which was also known as "anchu".

Alibag White onion in Maharashtra

Alibag, in the Raigad district of Maharashtra, is one of the popular tourist spots.

The GI for this onion, characterised by its sweetness, has been accepted.

The GI tag gives a unique identity to the white onion, which has medicinal qualities and is being cultivated in a traditional way for a long time.

Raktsey Karpo Apricot of Ladakh

Ladakh grows more than thirty types of Apricots, but the Raktsey Karpo variety is unique to the region.

Apricot is the major fruit of Ladakh with large-scale cultivation in both Leh and Kargil

Districts among the nine fruits grown in Ladakh.

Apricot is also being promoted under One District One Product for Kargil.

Tandur red gram of Telangana

Tandur red gram is a local variety of **pigeon pea** which is mainly grown in the rainfed tract of the Tandur and the nearby region of **Telangana**.

The fertile deep black soil with huge deposits of Attapulgite clay mineral specifically in the Tandur region along with huge limestone deposits can be attributed to the specific quality traits of Tandur red gram.

It contains about 22-24% protein, which is almost three times that of the protein content in cereals. It has good taste, better cooking quality as well as enhanced storage quality, sources said.

DOKRA METALCRAFT

Why in news?

Lalbazaar in West Bengal was a nondescript village until not too long ago. Today it's not only an art hub but also moving towards becoming a centre for dokra, a metalcraft popular in Bengal,

About

Dhokra is non–ferrous metal casting using the **lost-wax casting technique.** This sort of metal casting has been used in India for over **4,000 years and is still used**. One of the earliest known lost wax artefacts is the dancing girl of Mohenjo-daro.

Dhokra Damar tribes are the main traditional metalsmiths of West Bengal and Odisha. Their technique of lost wax casting is named after their tribe, hence Dhokra metal casting.

The tribe extends from Jharkhand to West Bengal and Odisha; members are distant cousins of the Chhattisgarh Dhokras. A few hundred years ago, the Dhokras of Central and Eastern India traveled south as far as Kerala and north as far as Rajasthan and hence are now found all over India.

Dhokra, or Dokra, craft from Dwariapur, West Bengal, is popular. Recently **Adilabad Dokra from Telangana got Geographical Indicator tag in 2018.**

Other Crafts

Bronze Crafts:

Rare Jain imagery and icons (Karnataka)

Pahaldar Lamps (Jaipur and parts of Uttar Pradesh)

Pembarthi craft (Telangana)

Other Metal Crafts:

Marori work of Rajasthan

Tarkashi (Rajasthan)

Bidri Craft (Karnataka)

NATIONAL MISSION OF MONUMENTS AND ANTIQUITIES

Why in news?

72 artefacts awaiting repatriation from 11 countries, Lok Sabha told. MP Dushyant Singh had also asked about the number of antiquities documented under the National Mission of Monuments and Antiquities (NMMA) digital database so far, and the steps been taken to increase the rate of documentation.

About

The National Mission on Monuments and Antiquities (NMMA) is an Indian government agency responsible for maintaining cultural heritage database under the Ministry of Culture of the government of India.

It was launched in 2007 aimed at studying, researching and preserving the cultural heritage of India. The main goal of the agency is to make information available online to the general public, explicitly for scholars and students interested or associated with the subject

Objectives of NMMA

Documentation and creation of **suitable database on built heritage and sites**

Documentation in a uniform developed by NMMA, of **all Antiquities** that are available in different formats in the form of Registered Antiquities, Catalogued Antiquities with Central as well as State Governments, Private museums and Collections, Universities, etc.

Promote **awareness and sensitize people** concerning the benefits of preserving the historical and cultural aspects of built heritage, sites and antiquities.

Extend **training facility and capacity building** to the concerned State Departments, Local bodies, NGOs, Universities, Museums, Local communities etc.

Help in developing **synergy between institutions** Archaeological Survey of India, State Departments, concerned Institutions and NGOs to generate close interaction. Publication and Research.

Implementation

Archaeological Survey of India (ASI) is the nodal agency for NMMA to implement the various activities all over the country.

Missions of Ministry of Culture

National Mission on Monuments and Antiquities

National Mission on Manuscripts

National Mission on Libraries

Gandhi Heritage Sites Mission.

UNESCO'S TENTATIVE LIST OF WORLD HERITAGE SITES

Why in news?

Vadnagar town, Modhera Sun Temple, Unakoti sculptures added to UNESCO's tentative list of World Heritage Sites

About

A Tentative List is an inventory of those properties which each State Party intends to consider for nomination.India now has 52 sites on UNESCO's tentative list

A World Heritage Site is a landmark or area with legal protection by an international convention administered by the United Nations Educational, Scientific and Cultural Organization (UNESCO). World Heritage Sites are designated by UNESCO for having cultural, historical, scientific

or other form of significance. The sites are judged to contain "cultural and natural heritage around the world considered to be of outstanding value to humanity"

UNESCO recognizes 46 World Heritage Sites, of which 32 are in India

The Government of India has laid down several statutes and other legal provisions to protect the cultural heritage of our country.

Vadnagar Town

Vadnagar is a town and municipality under Mehsana district of North Gujarat region of Gujarat state.

As an historical city it was known by various names such as Vridhanagar, Anandapur, Anartapur and Nagar

Vadnagar was situated at a **strategic location** where two major ancient trade routes crossed each other. One of them joined central India with the Sindh and further northwest regions while another connected the port towns on the Gujarat coast to northern India.

The ancient town of Vadnagar is an L-shaped town with **Sharmishtha Lak**e located on its northeastern edge.

The unique feature of Vadngar is that **it is located within the fortification wall of medieval period** and on the remains of ancient city. Man-made water bodies around the Vadnagar town are still active part of community life.

Vadnagar town is **a multi-layered and multi-cultural mercantile settlement** with its history stretching back to nearly 8thCentury BCE.

Historic town of Vadnagar can be compared to historic living cities of **Mathura, Ujjain, Patna and Varanasi** in India. These cities were inhabited since early historic period and in modern days also these are important religious or trade centers.

Internationally, Historic town of Vadnagar can be compared to the Historical City of Masouleh in Iran, Quanzhou in China, and Historic Town of Beypazarı in Turkiye.

Sun Temple, Modhera

The outstanding Sun Temple at Modhera is located on the left bank of the river Pushpavati, a tributary of river Rupan in Becharaji Taluka of Mehsana District of Gujarat.

The temple, built of in **Maru-gurjara architectural style**, consists of the main temple shrine (garbhagriha), a hall (gadhamandapa), an outer hall or assembly hall (Sabhamandapa or rangamandapa) and a sacred pool (Kunda) which is now called **Ramakunda**.

In front of the temple is the large pool or 'Kunda' known as **Suryakunda** which is approachable through a grand flight of steps for ablutions comprising a sheet of water contained within a rectangular arrangement of platforms and terraces interspaced with shrines of various sizes and shapes.

Sculptures of noteworthy iconography are found at the temple primarily of the panels of the large **figural frieze (angha)** on the **window balustrades (vedika)**, on the entrance doorframe, on the cella doorframe, and here and there in the inner walls.

The Sun Temple, Modhera dedicated to **Surya dev (The Sun God),** is one of the remarkable gems of temple architecture in India and the pride of Gujrat.

The Sun temple of Modhera is the **earliest of such temples** which set trends in architectural and decorative details, proportions and interrelationship

of different structures representing **Solanki style** at its best. Thus, the temple occupies a unique position in the art milieu of the western region during early medieval period.

It used **mainly sandstone** as the building material. Further, only this temple out of other sun temples in India has a kunda of extraordinary aesthetic and artistic creativity, in front of it.

Unakoti Rock cut sculptures

The site of Unakoti is located in the northeastern part of **Tripura**,

The vertical surface of the **Unakoti hills** was used by the ancient people to carve various **mythological scenes** such as the different iconographic forms of Siva, Ganesha, Uma-Maheshwara, etc. Unakoti is famous for its **colossal rock cut panels** depicting Hindu deities. Unakoti provides evidence of **ancient Saiva worship** in Tripura from 8th-9th centuries CE.

The bas relief sculptures at Unakoti are on stylistic grounds ascribed to 8th to 9thcentury CE, to the period of Pre-Manikya rule.

The images found at Unakoti can be classified into two categories:

a) Majestic rock-cut images on the vertical surface of the hill and fallen boulders and

b) loose sculptures of smaller and medium sizes scattered on the hill.

The most central and conspicuous figure at the site is known as **Unkotiswara Kala Bhairav**. The colossal rock-cut image of Shiva is about 30 feet in height, portrayed with the third eye vertically on the forehead and the other two eyes indicated with double incised lines without any pupils

A unique aspect of the carvings in Unakoti is treatment of the anatomical features of the different parts of the body of the deity. These are treated only in their broadest aspect, without any attempt to create harmony with the whole. The design of the ornaments shows influence of local tribes

Devtamura

Low reliefs of Hindu deities at **Devtamura in Kalajhari hills in Southern Tripura** in India are similar to those of Unakoti. There are about 37 relief panels at Devtamura, believed to have

been carved in 14th -15th century.

The style and representation of deities, technology of sculpting relief is more sophisticated as compared to Unakoti.

SILCHAR-SYHLET FESTIVAL

The year 2022 marks 75 years of India's Independence, a historic event that permanently changed the lives of inhabitants on both sides of the border. This year is also the **50th anniversary of the liberation of Bangladesh** from Pakistan.

The Government of India is observing the 75th year of independence, as "Azadi ka Amrit Mahotsav", to commemorate and celebrate the journey ofIndependent India.

Amongst the multiple commonalities between India and Bangladesh, links between the cities of Silchar and Sylhet stand out.

In an attempt to celebrate the age-old people-to-people connect of the region, India Foundation proposes to organise the 1st Silchar- Sylhet Festival on December 2-4, 2022 in the city of Silchar, Assam.

The aim of the festival is to revisit the **common values and shared heritage of the twin cities** and their people separated by international borders.

The festival will showcase tribal culture, cuisine, literature, arts, and crafts. The festival will also bring together eminent people from public and social life, industrialists, artists, scholars, and practitioners from both sides to discuss and deliberate on issues of mutual growth and opportunity.

In addition, the Festival will also provide a **platform to explore multi-disciplinary trade opportunities** in sectors such as healthcare, tourism, education, and digital infrastructure.

With the support of the Ministry of Culture, Government of India, and stakeholders from Bangladesh, facilitated and envisioned by India Foundation, New Delhi and with the active involvement and warm hospitality of locals in Silchar, the Silchar – Sylhet Festival will mark the first step towards creating potential and opportunities for all involved.

SRI MUKHALINGAM TEMPLE

Sri Mukhalingam Temple is famously known **as Dakshina Kashi (The Varanasi of South India).**

Sri Mukhalingam Temple is located in Mukhalingam village, Jalumuru Mandal, Srikakulam district, in the **northeastern corner of Andhra Pradesh, on the banks of River Vamsadhara.**

It was the capital of Kalinga Ganga Kings for over 600 years and the Trinity of Mukhalingeswara or Madhukeswara, Aniyanka Bheemeswara, and Someswara temples are a testimony to the spectacular Architectural skills of Kalinga Kings. It is one of the Archaeological Sites of India under the protection of ASI.

The Mukhalingeswara or Madhukeswara temple was founded by Kāmārnava–II, who was the son of Dānārnava of the Eastern Ganga dynasty, in the 8th century AD.

This Trinity of the Temple is considered a testimony of the Eastern Ganga dynasty, later known as the Cōdaganga dynasty after King Anantavarman Cōdaganga (c. 1077–1147). The carvings on Cōdaganga's Korni Copper Plant Grant, which dates back to 1113 AD, show that Cōdaganga's ancestor Kāmārnava built the Sri Mukhalingam temple.

According to Lionel D. Barnett, Kāmārnava–II was the grandson of Virasingha (the founder of the Eastern Ganga Dynasty) and the son of Dānārnava (Virasingha's second son).

Virasingha's five sons ruled from different places, while Dānārnava and Kāmārnava–II retained the center at Kalinganagara, which has been identified as present-day Srimukhalingam.

The **capital was moved to Mukhalingam from Dantapura,** which was the capital for the early rulers of the Eastern Ganga Dynasty.

GUTTI KOYA TRIBALS

The Koya population is concentrated in Telangana, Andhra Pradesh, Chhattisgarh and Odisha.

The Koyas speak the Koya language, which is a Dravidian language.

Most important fair celebrated by Koyas is the Sammakka Saralamma Jatra once in two years on the full moon day of the Magha Masam (January or February) at Medaram village in Mulug taluk of Warangal district.

Podu

Podu is a form of shifting cultivation, as practised by various tribal groups in forest areas has for long been an economical survival versus environmental sustenance issue.

NATIONAL ARCHIVES OF INDIA

Why in news?

The National Archives of India (NAI) does not have records of 1962, 1965, and 1971 wars, or even of the Green Revolution, its Director-General Chandan Sinha said recently. The admission shocked historians, with many calling this a ploy by successive governments to control the narrative, and saying that the country is losing its history.

About

The NAI, which functions under the *Ministry of Culture*, is the repository of all non-current government records, holding them for the use of administrators and scholars. Prof. G.W. Forrest was known as the Father of the National Archives of India.

Originally established as the *Imperial Record Department in 1891 in Calcutta,* the capital of British India, the NAI is now located in Delhi. It keeps and conserves records of the government and its organisations only, and does not receive classified documents.

Lately, NAI has also made efforts to make available all the records digitally — on the newly created **Abhilekh Patal portal.** However, five years later, it's a work in progress and the entire holdings haven't been digitised so far, with 1,27,136 records available for online access.

As per the **Public Records Act, 1993**, various central ministries and departments are supposed to **transfer records more than 25 years old to the NAI,** unless they pertain to classified information.

However, it is up to the respective ministries and departments to ascertain what is classified information, and that is where subjective opinions may kick in.

There are in all 151 ministries and departments, and the NAI has only records of 64 agencies, including 36 ministries and departments. Several Union ministries and departments have not shared their records with NAI.

Record centres

The National Archives of India has three Records Centre catering to the different regions of the country. They are :

1.   Records Centre, Jaipur, Rajasthan.

2.   Records Centre, Puducherry.

3.   Records Centre, Bhubaneswar, Odisha.

To promote archival awareness among the masses, the Museum of National Archives was set up in the department in 1998. It was formally declared open for public on 6 July 1998 by Shri K.R Narayanan, the then President of India in the presence of academicians, diplomats and galaxy of scholars.

SRI AUROBINDO'S BIRTH ANNIVERSARY

PM to participate in a programme commemorating Sri Aurobindo's *150th birth anniversary on 13th December* and release commemorative postal stamps and coins.

About Sri Aurobindo

- He was an Indian philosopher, yogi, maharishi, poet, and Indian nationalist.

- He also *edited newspapers such as Vande Mataram.*

- He joined the Indian movement for independence from British colonial rule, until 1910 was one of its influential leaders, and then became a spiritual reformer, introducing his visions on human progress and spiritual evolution.

- He associated himself with *Anushilan Samiti of Bengal and was arrested under the Alipore Conspiracy case.*

- In 1926, with the help of his spiritual collaborator, *Mirra Alfassa* (referred to as "The Mother"), Sri Aurobind**Literary works:** The Life Devine, Synthesis of Yoga
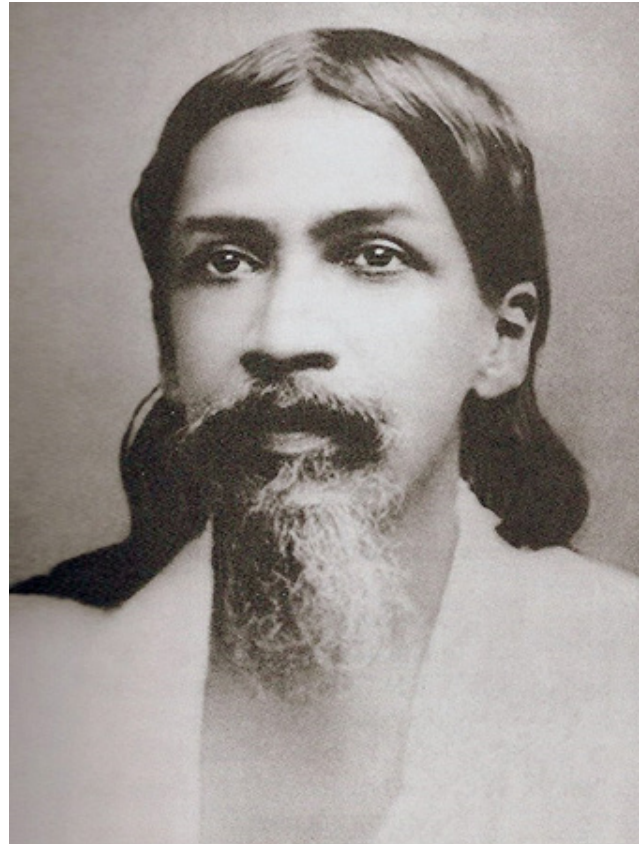
and Savitri: A legend and a symbol.

SAHIBZADE SHAHADAT DIWAS

Shiromani Gurdwara Parbandhak Committee (SGPC) chief Harjinder Singh Dhami on Sunday asked the Sikh community to observe the *martyrdom day of the sons of Guru Gobind Singh as 'Sahibzade Shahadat Diwas' instead of 'Veer Bal Diwas.'*

Zorawar Singh and Fateh Singh were the youngest of the four sons of Guru Gobind Singh and are considered to be the most hallowed martyrs in Sikhism. At a very young age, they lost their mother and were raised by their grandmother. The family of Guru Gobind Singh stayed at Anandpur where he founded the Khalsa Panth in 1699.

According to recorded history, **Anandpur was under siege in around 1704 and attacked by the Mughal Emperor Aurangzeb.** After holding the fort for months, food and other essential supplies started to diminish and the Sikhs only had one way to get out of this situation – to give up the fortress of Anandpur.

Guru Gobind Singh gave in to the demands of the Mughals and left the town. However, they had not gone very far when the Mughals broke the truce and went after them. Guru Gobind Singh's sons – Zorawar Singh and Fateh Singh – were captured and taken to Sirhind in the presence of nawab Wazir Khan, who demanded that they convert to Islam in return for a safe passage. Both of them did not accede to the demands, and were sentenced to death allegedly by being bricked alive. The site *where Guru Gobind Singh's sons were bricked alive is today known as Fatehgarh Sahib.*

HOW TO WRITE AN ESSAY?

The essay is a literary device for saying almost everything about almost anything

— Aldous Huxley —

UPSC mains contains a Essay paper worth 250 marks, equivalent to a General Studies paper. Well, the essay paper plays a crucial role in securing a rank for an aspirant. There have been many aspirants who could not secure a rank because of low marks in essays.

Most aspirants commit the mistake o*f either underestimating the value of an essay in UPSC Mains or focusing too much on structuring an essay.*

Every month we have been publishing an essay contributed by our student community. For this month due to a lack of clarity among new aspirants, we have decided to write about what factors are to be considered during essay writing.

1. **Go through all the previous year's questions.** You can understand that the area and scope of essays have been changing over the years. Earlier aspirants could avoid quote-based philosophical questions and choose a straightforward essay on Socio-Economic Issues. But in recent years there is a growing emphasis on philosophical essays

2. **Cultivate the habit of reading:** Reading is good for you because it improves your focus,

memory, and communication skills. Read some non-fiction books. Set a goal this year. Cometh the new year and we make such resolutions. I wish that this year you are able to complete reading 3 to 4 books at the least. (Does not include LakshmiKant 😁)

3. **Not just reading, engage in thinking and reflecting:** If possible, develop the practice of writing journals, dairy or scribbling some random stuff in your personal notebooks. It brings out your expressive side.

4. **Is proficiency in the English language a must for Essay Writing?**

   • No. While an essay does not require flowery vocabulary and a dense writing style, make sure to not commit simple grammatical mistakes. Vocabulary helps in condensing 4 to 5 lines of what you want to convey in a simple line. So yes, it comes handy but there are several examples of aspirants getting excellent marks with simple and plain usage of language. Do not miss the coherence of the essay.

5. **Only Philosophy students can write philosophy essays better. Is this true?**

- Yes., If you want to get an edge leave other optionals and choose philosophy. *Of course not, this is a myth.* Be detached from your optionals when you write an essay. Ex: If you are a sociology student don't write about all thinkers in your essay. You cannot completely escape the temptation to quote the thinkers but consciously avoid them. There is free play when it comes to philosophical essays. If you can interpret the question and reflect on this in your life and also what it means in the social world you can indeed write a very good essay.

6. **How to structure an essay?**

- a.Never miss this part

- *b.It should have an Introduction*- possibly you should develop the knack of writing an anecdote, story, etc. Many tend to write fictional stories. While it is permissible, the usage of real anecdotes and stories tends to be more effective in grasping the attention of the evaluator. *So don't always bring two friends - Ramesh and Suresh into your introduction story.* Write about real-life and inspirational anecdotes of great leaders or achievers.

- *c.Body:* This is a crucial part. Never digress from the topic. *Divide your arguments into many parts.* Ex: Supportive arguments, Critical arguments, and a synthesized approach. For General Topics like Women's Issues, you can bring variety by adding various dimensions. Some have even devised a model structure for this: SPELCH (Social Angle, Political, Economic, Legal, Cultural, Historic) model or the ISNG model (Individual, Society, National, Global) (other variants are also available). While this is a time-tested structure that pays well, many aspirants commit the mistake of taking this hardline structure for philosophical essays. Philosophies cannot be contained in this order. It may

risk your essay becoming boring.

- *d.Conclusion*: The most important part of an essay. *Always plan the conclusion before writing the essay.* Let it not be with the flow. It should not be rushed. All paragraphs should logically progress toward a good conclusion. Always recall the core of your argument in the conclusion

7. **What sources can I refer to?**

- It isn't the lack of content but the way of delivering them that distinguishes an excellent essay from an average one. Go through the toppers Essay to get an idea.

- I will suggest that you read the **essays of Vikram Grewal IFS**. -"ESSAY KAISE? " by Vikram Grewal AIR 51 UPSC CSE 2018 (besankahalwa.blogspot.com)

- Last year's topper Mehak Jain's Essay is worth reading. It may be available on websites and telegram channels.

8. **Is referring to a book necessary for Essay writing strategy?**

- Not necessarily. But if you are insistent and inconclusive then you can buy **Anudeep Durishetty's** The art of Essay and Mains Answer writing.

9. **How can I collect anecdotes and Examples?**

- You can refer to some online sources such as *Better Indian, The School of Life, Think School, Ted Talks, Government Magazines,* Speeche etc. Scroll thorugh some meaningful Youtube channels. Movies too are an excellent source.

- Every month we are also including value addition, quotes, and examples in our Catalyst Magazine. Since last month we are adding BOOK SUMMARIES also. You can utilize them.

- For those who know Tamil, I would suggest you to checkout an old podcast named

- வானம் வசப்படுமே: **It**'s a Tamil

program called vaanam vasapadume, programed by Oli 96.8 Fm Singapore. An audio broadcast of 99 extraordinary human beings with curiosity, confidence, courage and, constancy. Available at www.melisten.sg

UPSC GS or Optional mains answer requires objectivity. It is not based on abstractness. There are strategies and rules you should comply with. To put it bluntly, it does not check how individually talented you are. Neither do you have the time to innovate too much. You are required to furnish answers which are demanded by the evaluator. So, the scope for showing your unique personality is too limited in GS Mains Answer Writing.

An essay is the only paper in which you can be as innovative, articulate, or abstract if you are a brilliant writer. So, use this to bring out your personality. You will have time to showcase yourself.

There are lesser rules in Essay. There is only one thing you need to accomplish- Impress the evaluator. Hold his/her attention while reading your essay. You will be duly rewarded.

When We asked our faculty team what they would expect in an essay, this is what they had to share:

"Essay is not to dump too many points randomly. It's to check your organizational capacity ie how you are able to present your point without any ambiguity. Be constitutional by following the values given in the preamble of the Indian Constitution. Write logically. Lucid but expressive statements would impress the examiner"   **Mr. S. Sivarajavel – Our Founder Director**

"Writing an essay should be from the reader's perspective so that it makes sense and meaning to them. Also, the essay is essentially linear but the topic for the essay is not. Keep this truth in mind that your linear essay should bring all-round meaning to the topic chosen

Mr. S.Suresh Kumar- Academic Coordinator and Faculty of Environment,S&T.

"Essay has now evolved itself as a kind of written personality test. It requires the comprehensive understanding of all the subjects in your syllabus. The context behind the philosophical topics in the exam is very much related to the adherence of ethical principles in addressing any important issue so its a right combination of ethics paper substantiated with the content and issues of all GS papers."

Mr.S. Vivekanandan, Faculty of Geography

"First advice is to read the topic 5-10 times before starting to write on the topic, brainstorm on the topic, and write down all the points that come to our mind in some corner of the paper. Start writing Only after that. If the topic is regarding corruption; Start it with a simple and crisp introduction...define what is corruption it's occurrence its impact finally the conclusion. Your conclusion should be optimistic and pragmatic".   **Mr. K. Shankara Narayanan Faulty of History**
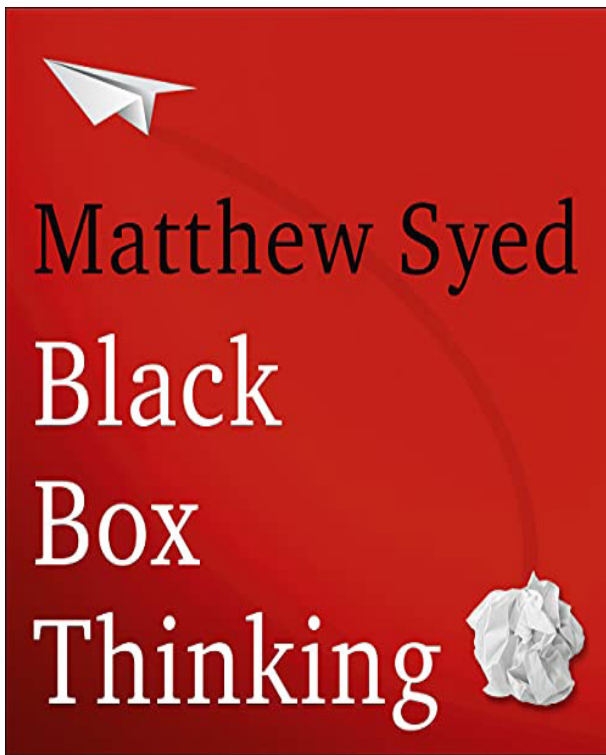
So Reading, Reflecting, and Contemplation is the key for essay writing. Read general books and cultivate an open mind. And above all KEEP PRACTICING.

Wish you all the best.

By,

Mr. P. Mohan, Faculty of Economy.

"BLACK BOX THINKING,"- MATTHEW SYED

Black Box Thinking is about the willingness and tenacity to investigate the lessons that often exist when we fail, but which we rarely exploit. Furthermore, It is about creating systems and cultures that enable organizations to learn from errors, rather than being threatened by them.

"A failure to learn from mistakes has been one of the single greatest obstacles to human progress."

"A progressive attitude to failure turns out to be a cornerstone of success for any institution."

"Society, as a whole, has a deeply contradictory attitude to failure. Even as we find excuses for our own failings, we are quick to blame others who mess up."

"It is partly because we are so willing to blame others for their mistakes that we are so keen to conceal our own. It destroys the vital information we need in order to learn."

"Only by redefining failure will we unleash progress, creativity, and resilience."

"So, just to re-emphasize, for our purposes a closed loop is where failure doesn't lead to progress because information on errors and weaknesses is misinterpreted or ignored; an open loop does lead to progress because the feedback is rationally acted upon."

"In each case, the investigators realised that crews were losing their perception of time. Attention, it turns out, is a scarce resource: if you focus on one thing, you will lose awareness of other things."

"The problem was not a lack of diligence or motivation, but a system insensitive to the limitations of human psychology."

"When people don't interrogate errors, they sometimes don't even know they have made one (even if they suspect they may have)."

"The mnemonic which has been used to improve the assertiveness of junior members of the crew in aviation is called P.A.C.E. (Probe, Alert, Challenge, Emergency)."

"In effect, practice is about harnessing the benefits of learning from failure while reducing its cost. It is better to fail in practice in preparation for the big stage than on the big stage itself. This is true of organizations, too, which conduct pilot schemes (and in the case of aviation and other safety-critical industries test ideas in simulators) in order to learn, before rolling out new ideas or procedures. The more we can fail in practice, the more we can learn, enabling us to succeed when it really matters."

"When we are confronted with evidence that challenges our deeply held beliefs we are more likely to reframe the evidence than we are to alter our beliefs. We simply invent new reasons, new justifications, and new explanations. Sometimes we ignore the evidence altogether."

"Cognitive dissonance occurs when mistakes are too threatening to admit to, so they are reframed or ignored. This can be thought of as the internal fear of failure: how we struggle to admit mistakes to ourselves."

"The problem today, is that we operate with

a ballistic model of success. The idea is that once you've identified a target (creating a new website, designing a new product, improving a political outcome) you come up with a really clever strategy designed to hit the bullseye."

"Professor Lane recommends an entirely different concept of success: the guided-missile approach. Success is not just dependent on before-the-event reasoning, it is also about after-the-trigger adaptation."

"In the absence of data, the narrative is the best we have."

"Marginal gains are not about making small changes and hoping they fly. Rather, it is about breaking down a big problem into small parts in order to rigorously establish what works and what doesn't."

"If we wish to fulfil our potential as individuals and organizations, we must redefine failure."

PRACTICE QUESTIONS

1. Which of the following best defines 'dry leasing an aircraft'?
   a) Renting the plane along with the operating crew and engineers
   b) Renting Conly the aircraft
   c) Renting an aircraft for defence
   d) Renting the aircraft for medical purposes

2. Which of the following statements is not true about RBI's e-rupee?
   a) It would be in the same denominations as currently issued.
   b) The transaction will be from a digital wallet offered by the participating banks.
   c) Transactions can be only person to merchant (P2M).
   d) RBI has demarcated the digital rupee into the categories of retail and wholesale.

3. It is the largest wetland in northern India. The wetland was formed by constructing the headworks across the Sutlej River. It is a man-made, riverine, lacustrine wetland spread into the three districts. The wetland is
   a) Harike
   b) Kanjli
   c) Nangal
   d) Renuka

4. 'Fujiwhara Effect' recently in the news is related to which of the following?
   a) Tropical Storms
   b) Earthquake
   c) Heatwaves
   d) Draught

5. The Battle of Rezang La, was fought during
   a) Indo-Pakistani War of 1947–1948
   b) Sino-Indian War of 1962
   c) Bangladesh Liberation War
   d) Kargil War

6. Hornbill festival is named after which of the following bird?

   a) Great Pied Hornbill

   b) NarcondamHornbil

   c) Malabar Grey Hornbill

   d) Indian Grey Hornbill

7. AgniWarrior is the military exercise of Indian Army with

   a) France

   b) Mauritius

   c) Singapore

   d) Italy

8. Consider the following statements

   1) The United Nations Development Programme (UNDP) is helping the people working in the waste seg-

regation industry in India to move into formal economy

2) UNDP distributed JanDhan account kits as a part of this initiative

Which of the above statements are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

9. Personality rights recently seen in news come under which of the following fundamental rights?

a) Right to equality

b) Right to privacy

c) Right against exploitation

d) Not a fundamental right

10. Which of the following is/are true about regenerative farming?

1) Minimise soil distribution through conservation tillage

2) Diversify crops to replenish nutrients and disrupt pest and disease lifecycles

3) Retain soil cover using cover crops

Select the correct answer using the code given below:

a) 2 only

b) 2 and 3 only

c) 1, 2 and 3

d) 1 only

11. Consider the following statements about red sand dunes

1) They do not occur in equatorial regions or temperate regions.

2) They are rarely distributed and found only in Tamilnadu in India.

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. State of Finance for Nature report is released by which of the following?

a) WEF

b) UNEP

c) UNDP

d) IUCN

13. Which of the following denotes the extent of inflation in the Indian Economy excluding the inflation in food and fuel?

a) Headline inflation

b) Underlying inflation

c) Shrinkflation

d) Core inflation

14. Which of the following are *not* the members of OPEC?

    1) Russia

    2) Venezuela

    3) Saudi Arabia

    4) China

    5) Iran

    Select the correct answer using the code given below:

    a) 1, 2 and 5 only

    b) 1 and 4 only

    c) 2 and 4 only

    d) 2, 3 and 5 only

15. Which of the following statements is/ are correct regarding Great Indian Bustard?

    1) The majority of the GIB population are found in Rajasthan.

    2) The population of GIB has increased by 50% in the last three decades.

    Select the correct answer using the code given below:

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

16. The term 'M-STRIPES' is sometimes seen in the news in the context of
    a) Captive breeding of Wild Fauna

    b) Maintenance of Tiger Reserves
    c) Indigenous Satellite Navigation System
    d) Security of National Highways

17. With reference to National crisis management committee consider the following statements

    1) National crisis management committee under the chairmanship of prime minister

    2) On the constitution of such a committee, the Home Secretary shall provide all necessary information to and seek directions.

    Select the correct answer

    a) 1 only

    b) 2 only

    c) Both 1 and 2

    d) Neither 1 nor 2

18. Which of the following country is not sharing border with Afghanistan

    a) Tajikistan

    b) Iran

    c) Kazakhstan

    d) Uzbekistan

19. Cabo Delago sometimes in news situated in which of the following country

    a) Nigeria

b) Spain

c) Cameroon

d) Mozambique

20. With reference to gold smuggling consider the following statements

1) Indian is largest gold consumer in the world

2) Smuggling in India report is released by Directorate of revenue intelligence (DRI)

Select the correct answer

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

21. Consider the following statements regarding NJAC

1) NJAC was entitled to be a body responsible for the appointment and transfer of judges to the higher judiciary in India.

2) A new article, Article 124A, (which provides for the composition of the NJAC) was to be inserted into the Constitution by the 99th constitutional Amendment Act

Which of the above statements are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

22. The mahastupa of Nagarjunakonda was built during the reign of which of the following?

a) Abhira King Isvarasena

b) Ikshvaku king Chantamula

c) Ikshvaku king Virapurushadatta

d) Satavahana King Yajna Sri Satakarni

23. Consider the following statements regarding Wildlife Protection (Amendment) Act, 2022

1) The act includes a schedule that lists the species listed under appendices of the CITES convention.

2) The act excludes the vermin species and includes an exclusive schedule for the species of plants.

Which of the above statements are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

24. Animal Welfare Board of India is headquartered in

a) Delhi

b) Pune

c) Hyderabad

d) Chennai

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

25. Consider the following statements regarding National Statistical Commission

1) It is a statutory body

2) It is formed under the recommendation of Rangarajan Commission

3) It is mandated to evolve policies, priorities and standards in statistical matters.

Which of the above statements are correct?

a) 1 and 2 only

b) 1 and 3 only

c) 2 and 3 only

d) 1, 2 and 3

26. Consider the following statements

1) The air flow inside the ramjet is subsonic while, in the Scramjet, it is supersonic

2) The ram jet engine works on the principle of Brayton cycle

Which of the above statements are correct?

a) 1 only

27. Akbar formulated dastur rates under the zabt system. What did dastur rate denote?

a) Cash revenue rates

b) Yields per bigha of land

c) Summary assessment

d) Standard schedule rate

28. Which of the following pairs of Traditional Indian games and their associated states are correctly matched ?

Traditional Indian Game		State
1.	Mallakhamb	-	Madhya Pradesh
2.	Thang Ta	-	Manipur
3.	Kalaripayattu	-	Kerala
4.	Gatka	-	Punjab

Select the correct answer from the given code.

a) 1, 2 and 4 only

b) 1, 3 and 4 only

c) 1, 2 and 3 only

d) 1, 2, 3 and 4

29. Singhapur caves is located in

    a) Odisha

    b) Jharkhand

    c) Chattisgarh

    d) Uttar Pradesh

30. Which of the following is/are conditions for a party to be recognized as a national party?

    1) It is 'recognised' as a state party in three or more states.

    2) If it has won at least 2% of the total seats in the LS from at least four states.

    Select the correct answer using the code given below:

    a) 1 only

    b) 2 only

    c) Both 1 and 2

    d) Neither 1 nor 2

31. Patwa and Salampanja recently seen in news are

    a) Tribal dance forms

    b) Himalayan plant varieties

    c) New mutant of rabies in India

    d) Indigenous light weight helicopter

32. The species Lisu wren babbler recently seen in news is a

    a) Spider

    b) Fish

    c) Bird

    d) Frog

33. Malampandaram tribe, recently in news belong to the state of:

    a) Tamil Nadu

    b) Karnataka

    c) Kerala

    d) Telangana

34. Consider the following statements

    1) Recently launched Rashid rover is Arabs world first lunar rover

    2) UAE is the fourth country to land on moon

    Select the correct answer

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

35. With reference to national water development agency consider the following statements

    1) National water development agency is autonomous society under the ministry of Jal Sakthi

2) The function of NWDA is modified into inter link river project and implementation of Pradhan mantri krishi sinchai Yojana

Select the correct answer

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

36. Grievance redressal index is published by which of the following organisation

a) Niti aayog

b) Department of personnel

c) Prime minister office

d) Department of administrative reforms and public grievances

37. '3200 Phaethon' recently seen in the news is

a) Asteroid

b) Mountain on the moon

c) Ransomware crypto worm

d) New planet from Ursa Major constellation

38. 'Toolkit on Enabling Gender Responsive Urban Mobility and Public Spaces in India' was launched by

a) UN Women

b) World Bank

c) CARE International

d) UN Development Fund for Women

39. With reference to 'end-to-end encryption' consider the following statements:

1) It is a process which enables location on electronic devices to secure it from unidentified users.

2) The process of end-to-end encryption uses an algorithm that transforms standard text into an unreadable format.

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

40. 'Tunis Agenda,' recently in the news, is related to which of the following?

a) UN Internet Governance Forum

b) World Meteorological Organization

c) International Seabed Authority

d) UN Framework Convention on Climate Change

41. Consider the following statements regarding methanol

1) It is a colorless flammable liquid

2) It is a high-octane, clean-burning fuel

3) It can cause blindness and even death when consumed at uncalculated levels

Which of the above statements are correct?

a) 1 and 3 only

b) 1 and 2 only

c) 2 and 3 only

d) 1,2 and 3

42. Consider the following statements

1) North east council is a statutory body

2) The funding of the council solely lies with the central government

Which of the above statements are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

43. 'SWOT', recently seen in news is a satellite launched by NASA for the purpose of

a) Understanding the origin and evolution of Jupiter.

b) Providing HD data on the salt water and the fresh water on Earth's surface.

c) Exploring the distant objects like stars and galaxies.

d) None of the above.

44. Consider the following pairs:

Traditions		Communities
1. Chaliha Sahib Festival	-	Sindhis
2. Nanda Raj Jaat Yatra	-	Gonds
3. Wari-Warkari	-	Santhals

Which of the pairs given above is/are correctly matched ?

a) 1 only

b) 2 and 3 only

c) 1 and 3 only

d) None of the above

45. Consider the following statements about Court Vacations:

1) During vacation, no benches shall function and no cases shall be heard.

2) The Supreme court enjoys only winter break and not summer break.

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

46. If another global financial crisis happens in the near future, which of the following actions/policies are most likely to give some immunity to India?

1) Not depending on short-term foreign borrowings

2) Opening up to more foreign banks

3) Maintaining full capital account convertibility

Select the correct answer using the code given below:

a) 1 only

b) 1 and 2 only

c) 3 only

d) 1, 2 and 3

47. Which of the following article under constitution Supreme Court has power to review its Judgement or orders

a) Article 136

b) Article 137

c) Article 142

d) Article 141

48. The '30×30 targets' are seen in the news in the context of

a) Global Clean Energy Action Forum

b) BRICS Summit

c) UN Biodiversity Conference

d) TERI's World Sustainable Development Summit

49. Consider the following statements:

1) The hippopotamus is a large semi-aquatic mammal native to sub-Saharan Africa.

2) Hippopotamus is the largest land mammal on Earth.

3) Convention on International Trade in Endangered Species (CITES) has banned international export/import of body parts of Hippopotamus.

Which of the above statements is/are correct?

a) 1 only
b) 1 and 2 only
c) 1 and 3 only
d) 2 and 3 only

50. Consider the following statements

1) AntiDumpingDuty is a customs duty on imports providing a protection against the dumping of goods at prices substantially lower than the normal value

2) Countervailing duty is a customs duty on goods that have received government subsidies in the originating or exporting country.

Which of the above statements are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Answers:

1.	B	2.	A	3.	A	4.	A	5.	B	6.	A	7.	C	8.	C	9.	B	10.	C
11.	A	12.	C	13.	D	14.	B	15.	A	16.	B	17.	D	18.	C	19.	D	20.	B
21.	C	22.	B	23.	C	24.	D	25.	C	26.	C	27.	A	28.	D	29.	A	30.	D
31.	B	32.	C	33.	C	34.	C	35.	C	36.	D	37.	A	38.	B	39.	B	40.	A
41.	D	42.	A	43.	F	44.	A	45.	D	46.	A	47.	B	48.	C	49.	A	50.	C

FACT SHEET

GENERAL STUDIES – I

SOCIETY

✦ According to the 2011 Census, the Scheduled Tribes account for 104 million representing 8.6% of the country's population.

✦ As per the World Migration Report 2022 of the International Organization of Migration (IOM), there were approximately 281 million international migrants globally in 2020, with around 2/3rd being labour migrants. The share of South Asia is 40%. Moreover, the South Asia-Gulf Migratory Corridor is the world's largest migrant corridor.

✦ According to 'The World Population Prospects 2019' published by the Population Division of the UN Department of Economic and Social Affairs, India is projected to surpass China as the world's most populous country by 2027.

✦ As per National Family Health Survey-05, the TFR is 2% (compared to 5.9% in 1950). TFR declined sharply after the 1970s, indicating an inversely proportional relationship between economic prosperity and the fertility rate.

GENERAL STUDIES – II

POLITY

✦ As per the ECI data, the ruling party got over 75% of the total electoral bonds sold in 2019-20.

✦ "2022 Prison Census" report by Committee to Protect Journalists (CPJ).

Findings:

✦ i.In 2022, the number of journalists jailed around the world has increased 20% from last year.

✦ ii.Major reason for jailing Journalists is to keep the lid on broiling discontent in a world disrupted by COVID-19 and the economic fallout from Russia's war on Ukraine.

✦ iii.India uses the preventive detention law, the J&K Public Safety Act to keep Kashmiri journalists behind bars. 6/7 jailed journalists are being investigated under the Unlawful Activities Prevention Act (UAPA).

SOCIAL ISSUES

HEALTH

The Salt content in food:
✦ A recent study published in the Journal of American College of Cardiology showed a higher incidence of heart attacks, heart failure and strokes with a higher frequency of adding salt to one's food.

✦ WHO recommends only 5 gm of salt per day. WHO Member States have agreed to reduce the global population's intake of salt by a relative 30% by 2025.

✦ All salt that is consumed should be iodized or "fortified" with iodine, which is essential for healthy brain development in the foetus and young child and for optimising people's mental function in general.

FOOD & NUTRITION:

✦ India's ranking in Global Hunger Index 2022 is 107 out of 121 countries (slipped from 101 in 2021).

✦ India has performed worse than all the countries in the South Asian region in the Global Hunger Index 2022 (except war-torn Afghanistan).

✦ India's National Family Health Survey (NFHS-5) from 2019-21 reported that in children below the age of five years, 35% were stunted, 19% showed wasting, and 32% were underweight and every second Indian woman is anaemic.

✦ According to the FAO's Food Security Report for 2021, India has a 15% undernourished population, the highest proportion of stunted children (30%), and wasted children (17%).

✦ The Global Nutrition Report 2021 shows that stunting among children in India is significantly higher than the Asian average of 21.8%.

✦ Iron deficiency anaemia is responsible for 3.6% of disability-adjusted life years (DALYs) i.e., years of life lost due to premature mortality and years lived with disability.

GENERAL STUDIES – III
ECONOMY

✦ India has achieved 48th rank in the global aviation safety ranking by the International Civil Aviation Organization (ICAO). In 2018, India was ranked 102. Singapore holds the first position followed by UAE and South Korea.

✦ As per the World Bank's latest Migration and Development Brief named the "Remittances Brave Global Headwinds", remittances to India are expected to reach a record level of $100 billion in 2022 (first ever country). In 2021, India received about $89 billion.

✦ The top remittance source to India has shifted from low-skilled, informal employment in the GCC countries (declined from 54% to 28% between 2016-17 and 2020-21) to high-skilled jobs in countries like the U.S., the U.K., Singapore, Japan, Australia and New Zealand (improved from 26% to 36% between 2016-17 and 2020-21).

✦ The U.S. (share of 23%), displaced Saudi Arabia as India's top source country for remittances.

✦ The remittances sent worldwide are expected to cross $794 billion in 2022. Out of which $626 billion worth of remittances were sent to low- and middle-income countries.

✦ Global Wage Report 2022-2023: The Impact of inflation and COVID-19 on wages and

purchasing power" report talks about the twin crises of inflation and economic slowdown which have led to a fall in the real monthly wages across the world. Impacts of the Russia-Ukraine war in worsening the global energy crisis.

✦ According to the Ministry of Statistics and Programme Implementation, the nominal wages (adjusted to inflation) increased from ₹4,398 in 2006 to ₹17,017 per month in 2021 in India. But the real wage growth rate (excluding inflation) in the country has fallen from 9.3% in 2006 to -0.2% in 2021.

✦ Asia-Pacific Employment and Social Outlook 2022: Rethinking sectoral strategies for a human-centred future of work" report points out that the Asia-Pacific region has lost over 2.2 crore jobs in 2022.

✦ According to the Centre for Monitoring Indian Economy, the unemployment rate in urban areas stands at 10% and in rural areas, it is 8.75%.

AGRICULTURE

✦ Rice forms the major staple diet of 65% of the population in India.

✦ In India, between 55 and 60 per cent of rural households depend on agriculture and related industries for their livelihood.

✦ According to the agriculture census (2015-16), 82% of farmers belong to small and marginal categories, with less than 1 acre of land each.

✦ Agriculture accounts for 18.8 per cent of the country's Gross Value Added (GA) (2021-22).

ENVIRONMENT

✦ The population of the one-horned rhino was about 12 when Kaziranga was declared a protected area in the year 1905. As per the State of Rhino Report 2022, the number of Rhinos in Kaziranga is around 2,613. This is more than 65% of its total population.

✦ India houses approximately 60% Asian elephants and according to the last estimate of the species (2017). The total number of elephant reserves in India stands at 32. Around 500 humans and 100 elephants are killed in India every year due to human-elephant confrontations. Around 101 elephant corridors have been identified in India.

✦ World Soil Day (WSD) is annually observed on December 5. The theme of WSD 2022 is 'Soils: Where food begins.' It aims to raise awareness about the importance of maintaining healthy soils, ecosystems, and human well-being through sustainable soil management. Soil degradation directly or indirectly impacts 29% of India's total land area. Approximately 3.7 million hectares of land suffer from nutrient loss in soil (that is depletion of soil organic matter).

✦ According to the UNEP approximately 37% of the world's population lives within 100 km of the coast and it supports a vast economic activity like international trade and fishing.

✦ Biodiversity is often regarded as "the web of life". According to UNCBD, only around 1.75 million species have been identified so far and it is estimated that there may be around 13 million species existing on earth.

POLLUTION

✦ According to a 2022 study, in India, Plastic waste production increased by 40% since 2017.

✦ Only 15% recycled and 0.6 million tonnes end up in oceans through rivers or surface runoff.

✦ IUCN Reports: 14 million tonnes plastic waste enters oceans annually, mainly from land-based sources and Plastic waste forms 80% of marine debris.

✦ Great Pacific Garbage Patch makes up 3% of ocean plastic pollution.

SCIENCE AND TECHNOLOGY

✦ A study was conducted by Space2Grow and CyberPeace Foundation found that nearly 44% of the respondents began using the Internet after the COVID-19 outbreak. It was also observed that 98% of the participants used cheaper devices like smartphones to access the Internet.

✦ As per the U.S.-based National Center for Missing and Exploited Children's Cyber tipline report for 2021, India accounts for approximately 4.69 million reports of online abuse of children out of the 29.3 million reports worldwide. It is the highest in the world.

SPACE ECONOMY

✦ India currently accounts for roughly 2 to 3% of the global space economy and is predicted to increase its contribution to 10% by 2030.

✦ As of 2021, India has the 6th largest space industry internationally with 3.6% of the world's space-tech companies.

✦ In 2019, the Indian space industry was estimated to be worth $7 billion, and by 2024, it hopes to reach $50 billion.

ANTIMICROBIAL RESISTANCE

✦ Global Antimicrobial Resistance and Use Surveillance System (GLASS) report-2022 by WHO showed that over 50% of life-threatening bacterial infections are becoming resistant to treatment ("superbugs").

✦ According to AMR-WHO, Bacterial resistance to antibiotics is the direct cause of 1.27 million deaths worldwide each year, and it indirectly leads to an additional 4.95 million deaths annually.

✦ According to a 2017 World Bank assessment, AMR could cause a US$ 1.2 trillion in increased health expenditure each year by 2050, and push up to 24 million more people, primarily in low-income countries, into extreme poverty by 2030.

1. *Sathidar Abhiyan is an initiative for the empowerment of women and children through the eradication of social evils in the district of Jhabua (Madhya Pradesh). It intends to bring an end to the reserve dowry system by social leaders aware of the adversities. Since it is not easy to end the practice in a go, the administration capped the dowry amount to Rs 50,000 or less.*

2. *The "India and the World: Scenarios to 2025" which was published by WEF/CII in 2005 projected three scenarios of India's future based on India's economic policies i.e., "BollyWorld", "Atakta Bharat" and "Pahale India".*
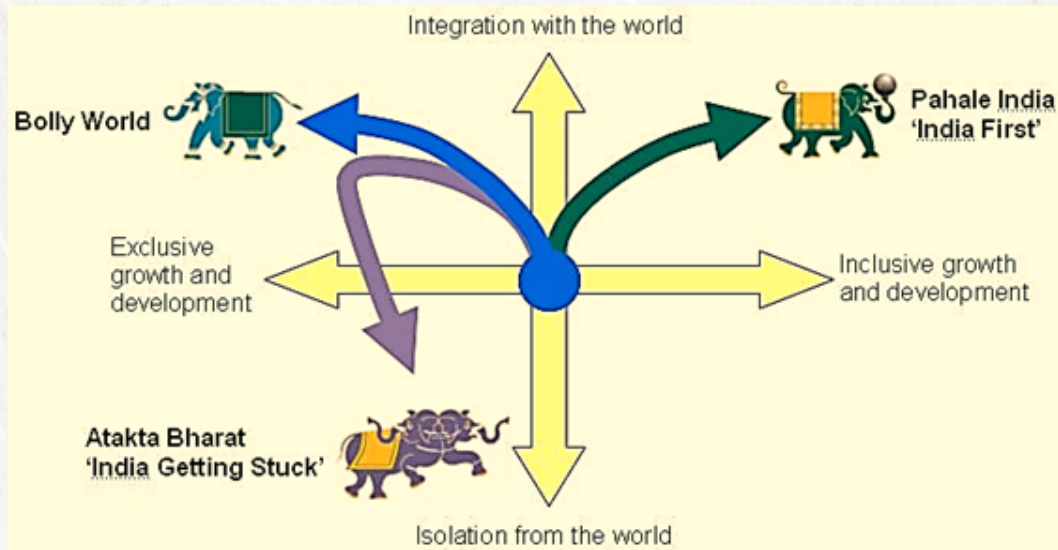
3. *A recent survey by Deloitte shows a growing number of Gen Z and millennial workers have grown tired of not being recognised or compensated for putting in extra hours. Now, they want to end the burnout and are looking to focus on a work-life balance. The phrase "Quiet quitting" promotes people to take time out of work and do something outside of the office. This trend shows the impact of hybrid or work-from-home-based office work culture in the last two years.*

4. *Coming to the rescue of the critically endangered Great Indian Bustard (GIB), the Supreme Court recently mooted the idea of launching 'Project GIB' on the lines of 'Project Tiger', which was started in 1973 to save the big cats, and sought the government's view on the proposal.*

5. *Recently, President Droupadi Murmu while addressing the delegates of a National Workshop on 'Janjatiya Anusandhan – Asmita, Astitva evam Vikas' said that the Indian Knowledge System (IKS) that the National Education Policy is currently emphasizing the need to incorporate the knowledge of indigenous tribes.*

6. *The Saurashtra cricket team beat Maharashtra to win the 2022 Vijay Hazare Trophy. The Vijay Hazare Trophy, also known as the Ranji One-Day Trophy, is an annual limited-overs cricket domestic competition involving state teams from the Ranji Trophy plates organized by the Board of Control for Cricket in India (BCCI).*

7. *Tamil Nadu state government aims to cut down the access to hazardous chemicals and cow dung powder to reduce the suicidal tendencies of people. Their easy availability leads to a considerable number of suicides.*

8. *The State of Punjab has allowed conjugal visits (rights created by marriage) for prison inmates in order to ensure the right to life and personal liberty of prisoners. Conjugal visits to prisons refer to the concept of permitting prisoners to spend time privately with their spouses within the prison premises. It has a positive impact on prisoners in the form of psychological health benefits, preservation of marital ties and, the reduction in the rates of homosexuality and sexual aggression within prisons. And also the conjugal visits are a fundamental right of the spouses of the prisoners.*

9. *The President of India, Droupadi Murmu inaugurated the "PRASAD project" (National Mission on Pilgrimage Rejuvenation And Spiritual Augmentation Drive) in the pilgrim town of Srisailam in Andhra Pradesh. The key objective of the scheme is to focus on identifying and developing pilgrimage sites across India in an integrated manner for enriching the religious tourism experience.*

10. *Uttarakhand government is planning for genetic enhancement of Badri Cows to increase their productivity. Officials have proposed to opt for the Multiple Ovulation Embryo Transfer (MOET) methods to produce more cattle of a high genetic stock.*

11. *Kerala Chief Minister inaugurated a palm-leaf manuscript museum with modern audio-visual technology at the renovated Central Archives, Fort, in Thiruvananthapuram. The manuscripts will provide an idea about various aspects such as taxation, administration, trade, education, prisons, and festivals of the erstwhile Travancore, Kochi, and Malabar kingdoms/provinces.*

12. *A unique 'Oran Bachao Yatra' was recently conducted through remote villages and hamlets in western Rajasthan to raise awareness about the need of protecting orans, or sacred groves.*

13. *New Zealand passed into law a unique plan to phase out tobacco smoking by imposing a lifetime ban on young people buying cigarettes (anybody born on or after Jan. 1, 2009), apart from regulating the number of stores selling it and the amount of nicotine in the cigarette. It means the minimum age for buying cigarettes will keep going up and up. It helps to meet the stated goal of making New Zealand smoke-free by 2025 and helps save on health costs due to smoking.*

14. *Sirisha Bandla went to the edge of space as part of the historic 2021 "Unity 22 mission," i.e., Virgin Galactic's first fully crewed sub-orbital spaceflight – making her the second woman born in India to go to space.*

15. *Widespread protests erupted in Iran this year, following the death of Mahsa Amini, a 22-year-old Kurdish woman arrested by morality police (now abolished) in Tehran for allegedly violating Iran's strict rules requiring women to cover their hair with a hijab, or headscarf. Haircutting has become one of the symbols of a movement (a traditional sign of mourning) that has spread to celebrities, politicians and campaigners across the world.*

16. *In the FIFA World Cup, Qatar 2022 Morocco has shattered the stereotypes by becoming the 1st African nation in the semi-final of the Football World Cup. It is the first Arab nation to*

enter the last four. It is the first team with an Arab coach, Walid Regragui, at the helm to reach this far. Morocco has beaten the title contenders Belgium, Spain and Portugal, and held fellow semi-finalists, Croatia.

17. *Salima Rhadia Mukansanga was picked by FIFA as one of the first three women referees to officiate at a men's World Cup, in Qatar 2022 - the first time the tournament had women in the role in its 92 years. Before working in sports, she trained as a midwife.*

18. *Ayesha Malik (Pakistani Supreme court Judge) She has been appointed this year as the first female judge of the Supreme Court of Pakistan. She has authored judgements protecting the rights of women. This includes her landmark judgement which banned the so-called two-finger test of rape victims (also banned in India). She has encouraged including the gender perspective in the justice system.*

19. *A Kerala-based organisation named Thanal has embarked on a unique conservation experiment, planting 300 climate-resilient varieties of traditional rice on 1.5 acres of land at its agroecology centre in Panavally in the Wayanad district. Thanal has been organising annual "rice field weeks" since 2012.*

20. *2022 was the year of "goblin mode," defined by Oxford as a type of behaviour which is unapologetically self-indulgent, lazy, slovenly, or greedy, typically in a way that rejects social norms or expectations. The "#goblinmode" hashtag is often used as a contrast to the idealized manifestations of being one's best version. The dramatic rise of platforms like 'BeReal' where users share images of their unedited selves, often capturing self-indulgent moments in goblin mode.*

TERMS IN NEWS

1. *Custody Parole: A convict who is ineligible for any furlough or parole is allowed to attend a funeral/marriage of a close relative under a Police escort. Different states have different periods for custody parole. For instance, in Haryana, it is 6 hours and in Kerala, it is for a maximum of 24 hours.*

2. *Concept of Principal Contradiction: It is defined as a useful method of optimizing and prioritizing strategic decision-making. In the present scenario, India's principal strategic contradiction is China. (Pakistan, internal insurgencies, and other difficulties are secondary contradictions). India's major strategic decisions should pass the "China test" by asking and answering "Does a particular development/decision/relationship help tackle the China challenge?" This test would help prioritize strategic decision-making in the long run.*

3. *Dark patterns: It was first coined by Harry Brignull to describe the ways in which software can subtly trick users into doing things they didn't mean to do or discourage the behaviour that's bad for the company. Such patterns are unethical user interface to benefit the company or platform.*

RELEVANT QUOTES

1. *"Great spirits have always encountered violent opposition from mediocre minds." Albert Einstein.*

2. *"The whole is greater than sum of its parts." Aristotle.*

3. *"Do not fear to be eccentric in opinion, for every opinion now accepted was once eccentric." Bertrand Russell.*

4. *"Either write something worth reading or do something worth writing." Benjamin Franklin.*

5. *"A Right Delayed is a Right Denied." Martin Luther King.*