



SIVARAJAVEL IAS ACADEMY
FOUNDER - DIRECTOR OF SMART LEADERS IAS

the **CATALYST**

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NATIONAL EMBLEM OF INDIA

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The CATALYST

DIRECTOR: S. SIVARAJAVEL

EDITOR: P. Mohan

SUB-EDITOR: Balakumar and
Manivannan.S

EDITORIAL TEAM:

J.J. Deepak, S. Infency,
N. Shanmuga Priya,
M.Ravimuthu, RajanSurya.M

DESIGNERS: Thomas
Kalaivaanan

COVER DESIGN: P.Mohan



Visit us at

Website : www.sivarajavelias.com

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Youtube : <https://www.youtube.com/c/SivarajavelIASAcademy>

[SivarajavelIASAcademy](http://www.sivarajavelias.com)

HEAD OFFICE

No.97, AF Block, Shanthi Colony, 12th Main Road,
Anna nagar West, Chennai – 600 040

Ph: 9626364444

TIRUNELVELI

No.106B, 3rd floor, Gilgal Complex, VOC ground opposite,
Palayamkottai - 627 002.

Ph: 9626252500

TRICHY

No.143, 4th Floor, Lakshmi Complex, Salai Road,
Thillai Nagar, Trichy - 620 018.

Ph: 9751500300 / 9786500300

Sivarajavel IAS Academy 's **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

**New sections will be added or removed based on the new updates we include in the forthcoming issues.*

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SIVARAJAVEL IAS ACADEMY
FOUNDER - DIRECTOR OF **SMART LEADERS IAS**

the **CATALYST**

From the Editor's Desk

Dear Readers,

The CATALYST turns One Year.

Last year, We were clueless as to how to take this forward.

The famous painter Vincent Van Gogh said about the uncertainty of events,

“If I cease searching, then, woe is me, I am lost. That is how I look at it – keep going, keep going come what may.”

We just placed before us one objective- Utility to the Aspirants and took the plunge.

We trusted in the process, set a simple goal that readers should not feel an overdose or fatigue while reading. It was a bit of a learning experience for us as well.

On this occasion I would like to thank our dynamic Editorial team for their willingness to constantly improve, our Director Mr. S.Sivarajavel for trusting and giving us a free hand and the aspirant community for motivating us to work better.

We acknowledge that even after a year there is so much to improve from our side. From last month onwards, Every Saturday 5 pm to 7 pm, a discussion and reading session is held so as to help aspirants to complete Monthly Magazines without piling up for later. It is open to all and we wish to convert it into an Aspirant led discussion forum. We welcome you all for this session.

In this July Issue (From July 1 to July 30, 2022, Current Affairs), we have covered a range of topics with special emphasis on Bail Reforms, 25 years of PPP, Space Sustainability 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?



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BAIL REFORMS

*Structure, organization and functioning of
the Executive and the Judiciary Ministries
and Departments
of the Government;*

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SAMTA NYAY KENDRA

Why in news?

The information about Samta Nyay kendra was given by the Minister for Law and Justice, Shri Kiren Rijiju in a written reply to a question in Lok Sabha.

is named as 'Samta Nyay Kendra'.

The objective of this Kendra is *to provide counselling and help the transgenders in redressal*

About-

Under the National Legal Services Authority (Legal Services Clinics) Regulations, 2011, the District Legal Services Authority (DLSA), UT Chandigarh in association with Chandigarh State Aids Control Society and Association of Professional Social Workers & Development Practitioners (APSWDP), has opened a Legal Services Clinic, exclusively to provide legal services to transgender community, which



“Recognition of transgenders as a third gender is not a social or medical issue but a human rights issue,” Justice K.S. Radhakrishnan told the Supreme Court while handing down the ruling after hearing the petition filed by the National Legal Services Authority

THE TRANSGENDER PERSONS (PROTECTION OF RIGHTS) BILL, 2019 was passed to provide for protection of rights of transgender persons and their welfare and for matters connected therewith and incidental thereto.

The National Council for Transgender Persons (NCTP) is the statutory body of the Government of India, generally concerned with advising the government on all policy matters affecting transgender, Intersex persons and people with diverse GIESC (Gender identity/expression and sex characteristics) identities. It was established in 2020 under the provisions of the Transgender Persons (Protection of Rights) Act, 2019

As of October 2020, NCTP is led by the Minister of Social Justice and Empowerment, Thawar Chand Gehlot. The council is composed of four representatives of the transgender community and one from Intersex community, one each from five different regions: the north, south, east, west and northeast. Additionally, several Joint secretary-level ex-officio members from various governmental ministries serve on the council as well as five expert members from nongovernmental organisations.

of their legal grievances. For this purpose, Panel Lawyers and Para Legal Volunteers are deputed on need-based assignments by the DLSA.

The effort is to provide legal services through the Para Legal Volunteers from within members of the transgender community in an inclusive atmosphere. The said Kendra is also spreading legal awareness regarding various rights and

entitlements of the transgender persons.

Apart from Chandigarh, five such exclusive Legal Services Clinics have also been set up at locations having predominant transgender community in five districts of Tamil Nadu namely Namakkal, Tiruvallur, Tirunelveli, Madurai and Thanjavur.

DIGITAL COMMUNICATION COMMISSION

Why in news?

The Comptroller and Auditor General (CAG) has pulled up the telecom department for not finalising policy on spectrum assignment for captive uses and flagged the absence of spectrum price review for captive users administratively. The Digital Communication Commission is the apex body for telecom policy formulation.

About -

Digital Communications Commission (Erstwhile Telecom Commission)

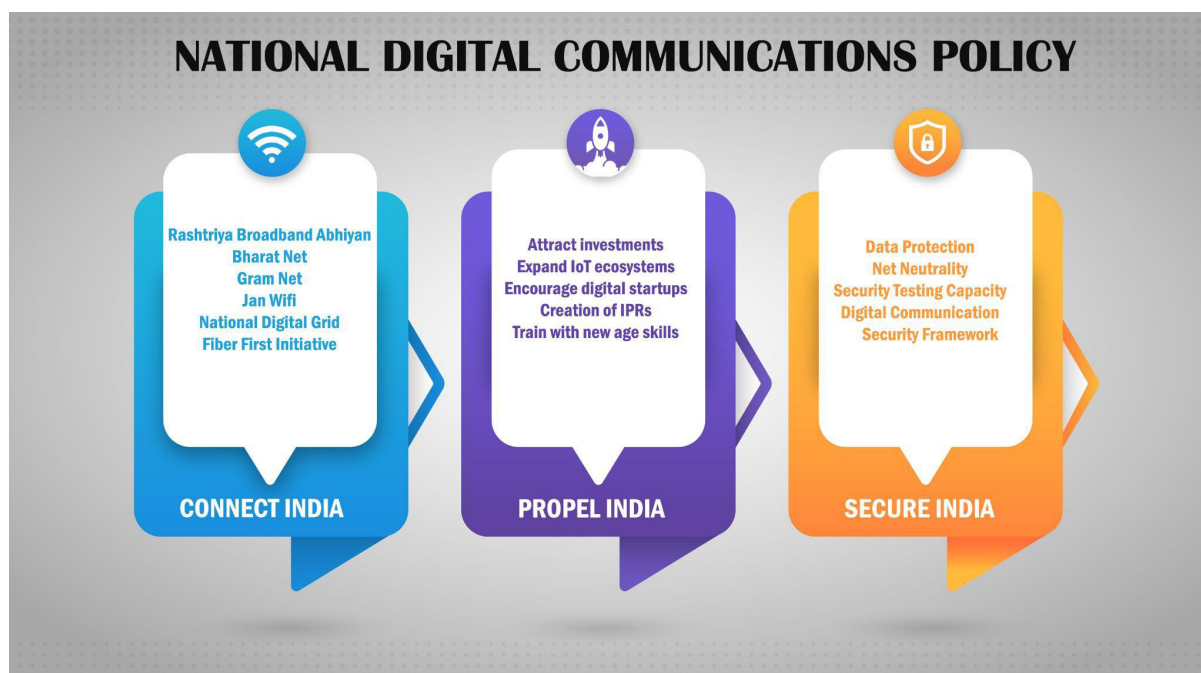
The Telecom Commission was set up by the Government of India vide the Resolution with administrative and financial powers of the Government of India to deal with various aspects

of Telecommunications.

The Government, in 2018, has re-designated the 'Telecom Commission' as the 'Digital Communications Commission'.

Composition -

The Digital Communications Commission consists of a Chairman, four full time members, who are ex-officio Secretaries to the Government of India in the Department of Telecommunications and four part time members who are the Secretaries to the Government of India in the concerned Departments. The Secretary to the Government of India in the Department of Telecommunications is the ex-officio Chairman of the Digital Communications Commission.



Roles and Responsibilities

Formulating the policy of Department of Telecommunications for approval of the Government;

Preparing the budget for the Department of

Telecommunications for each financial year and getting it approved by the Government; &

Implementation of Government's policy in all matters concerning telecommunication.

DIGITAL WEEK 2022

Recently, the Prime Minister has inaugurated the Digital India Week 2022 under the Digital India Programme, with the aim to strengthen Ease of Doing Business and Ease of Living.

Theme: 'Catalyzing New India's Techade'.

To transform the nation into a digitally empowered society and knowledge economy.

During the programme, PM launched multiple digital initiatives aimed at enhancing the accessibility of technology, streamlining service delivery to ensure ease of living and giving a boost to startups.

Digital Initiatives

'Digital India Bhashini' will enable easy access to the internet and digital services in Indian languages, including voice-based access, and help the creation of content in Indian languages.

The key intervention in building AI-based language technology solutions for Indian languages will be the creation of multilingual datasets.

It will enable massive citizen engagement to build these datasets through a crowdsourcing initiative called BhashaDaan.

'Digital India GENESIS' (Gen-next Support for Innovative Startups) - a National Deep-tech Startup Platform, to discover, support, grow and make successful startups in Tier-II and Tier-III cities of India. A total outlay of 750 Crore has been envisaged for the scheme.

'Indiastack.global' - a global repository of key projects implemented under India Stack like Aadhaar, UPI, Digilocker, Cowin Vaccination Platform, Government e-Marketplace (GeM), DIKSHA Platform and Ayushman Bharat Digital Health Mission.

This offering of India to the Global Public Digital Goods repository will help position India as the leader in building Digital Transformation projects at a population scale and prove to be of immense help to other countries which are looking for such technology solutions.

'MyScheme' - a service discovery platform facilitating access to Government Schemes. It aims to offer a one-stop search and discovery portal where users can find schemes that they are eligible for.

'Meri Pehchaan'- National Single Sign On for One Citizen Login. National Single Sign-On (NSSO) is a user authentication service in which a single set of credentials provide access to multiple online applications or services.

The C2S Programme aims to train specialized manpower in the area of design of semiconductor chips at Bachelors, Masters and Research levels, and act as a catalyst for the growth of Startups involved in semiconductor design in the country. It offers to mentor at the organisational level and makes available State-of-the-art facilities for design to the institutions. This is part of the India Semiconductor Mission to build a strong design ecosystem in semiconductors.

MODEL TENANCY ACT

Model Tenancy Act aims to regulate the rental market and unleash the potential in the real estate sector. As per information available with the Ministry of Housing and Urban Affairs (MoHUA), the States of Andhra Pradesh, Tamil Nadu, Uttar Pradesh and Assam only have revised Tenancy Acts on the lines of MTA.

Need for the act:

The existing rent control laws are restricting the growth of rental housing and discourage owners from renting out their vacant houses due to fear of repossession. One of the potential measures to unlock the vacant house is to bring transparency and accountability to the existing system of renting premises and to balance the interests of both the property owner and tenant in a judicious manner.

The Model Tenancy Act

The Model Tenancy Act, 2021 is to establish Rent Authority to regulate renting of premises and to protect the interests of landlords and tenants and to provide speedy adjudication mechanism for resolution of disputes and matters connected therewith or incidental thereto.

It aims at creating a vibrant, sustainable, and inclusive rental housing market in the country. It will enable the creation of adequate rental housing stock for all income groups thereby addressing the issue of homelessness. It will enable the institutionalization of rental housing by gradually shifting it toward the formal market.

The Model Act requires the landlord and

tenant to sign a written agreement which specifies the rent, period of tenancy and other related terms.

Security deposit is capped at two months' rent for residential premises, and six months' rent for non-residential premises.

Conditions for eviction of tenant under the Model Act include: Refusal to pay agreed-upon rent; Failure to pay rent for more than two months; Occupation of part or whole of premises without written consent; and Misuse of premises despite a written notice.

The Act also tries to address how a renter can legitimately increase the rent. The Act states that rent can either be increased according to the terms and conditions mentioned in the agreement, or the landowner will have to give a notice in writing to the tenant, three months before the revised rent comes into effect.

A landowner cannot cut power and water supply in case of a dispute with the tenant.

A landowner cannot enter the rented premises without 24-hour prior notice to carry out repairs or replacements.

The Model Act establishes a three-tier quasi-judicial dispute adjudication mechanism consisting of: Rent Authority; Rent Court; and Rent Tribunal.

Rent Authorities and Rent Courts may be established by the District Collector with the approval of the state government. The state or union territory government may establish a Rent Tribunal after consulting with the jurisdictional High Court.

ZONAL COUNCIL

The meeting of the Northern Zonal Council, chaired by Union Home Minister Amit Shah, began at Jaipur

The council comprises Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, National Capital Territory of Delhi and Union Territory of Chandigarh.

Internal security, road, transport, industries, water, power and other issues of common interests are to be discussed at the meeting.

Rajasthan Chief Minister Ashok Gehlot, Haryana's Manohar Lal Khattar, Himachal Pradesh's Jai Ram Thakur, Ladakh Lt Governor Radha Krishna Mathur, Delhi Lt Governor Vinai Kumar Saxena, Punjab Governor and administrator

of Chandigarh Banwarilal Purohit as well as senior officers from these states are present in the meeting.

The regional councils provide a forum for discussion in a structured manner on issues affecting one or more states or issues between the Centre and the states.

There are five zonal councils in the country which were set up in 1957 under Section 15-22 of the States Reorganisation Act, 1956.

The Union home minister is the chairman of each of these five zonal councils and chief minister of the host state — chosen on a rotational basis every year is the vice-chairman.

total of 47 issues were discussed in the 30th meeting of the Northern Zonal Council held in Jaipur and the 19th meeting of its standing committee,” the MHA stated.

Of these, four issues have been identified as important topics at the national level; these are being regularly discussed and monitored in the

meetings of various zonal councils.

These include improving banking services in rural areas, monitoring cases of rape and sexual offenses against women and children, setting up fast-track courts for such cases and implementing Direct Benefit Transfer.

Of 47 issues discussed, 35 have been resolved, according to the ministry. The growing threat of cybercrime and strategies for its prevention were also discussed, the MHA stated.

Shah “stressed upon the States and Union Territories to conduct awareness campaigns on cyber-vigilance through various mediums”, it stated. “In view of the profound impact of cybercrimes on national security, public order and economic activity, the Council emphasized the need to ensure security of the nation’s cyber space and the security of citizens as a whole.

NATIONAL EMBLEM ORIGIN

What is the National Emblem?

The National Emblem is one of the most visible symbols of national identity and it is used as the seal of the Republic.

It was adopted from the Lion Capital of one of the Ashoka Pillars on January 26, 1950. The symbol was adopted along with the motto ‘Satyameva Jayate, taken from the Mundaka Upanishad and meaning ‘truth always wins’.

How is the emblem structured?

The emblem has four lions mounted back-to-back on a circular abacus, facing four different directions.

They represent courage, pride, power and confidence

A circular abacus on which the lions stand is adorned with the engravings of a bull, a horse, and an elephant.

Along with the lions, it is believed that the

animals represent the four stages of Gautam Buddha’s life. Lions indicate the stage of achieving enlightenment.

The bull symbolises Taurus, the zodiac sign of Buddha. The elephant denotes his outset.

The horse symbolises his ride after leaving the citadel where he gave his first sermon.

The animals are separated by Ashok Chakras or Dharmachakras. The above-mentioned structure rests on an inverted lotus, which was chosen as the National Flower of India. However, it is not a part of the Emblem.

When was the National Emblem designed?

The Lion Capital was erected in Sarnath 250 BC. Buddha gave his first sermon at Sarnath, Uttar Pradesh.

It was excavated by Friedrich Oscar Oertel in 1905.

After independence in 1947, leaders were looking for a symbol that could be used as the national emblem.

Badruddin Tyabji, a civil services officer and a freedom fighter, and his wife Surayya Tyabji proposed the usage of the Lion Capital for the same.

When the Constitution was being drafted, Dinanath Bhargava was selected to design the National Emblem. Under the mentorship of Nandalal Bose, who designed the illustrations in the document, Bhargava sketched the Emblem on the first page of the Constitution.

AYUSH MARK CERTIFICATION SCHEME

Ayush Mark Certification Scheme is operated by Quality Council of India (QCI) since 2009. The salient features of the scheme are as follows:

It is a voluntary certification scheme for ASU&H products having two levels: Ayush Standard Mark and Ayush Premium Mark.

The Ayush Standard Mark is based on Good Manufacturing Practices (GMP) for Ayurvedic, Siddha and Unani medicines (Schedule T) as per Drugs and Cosmetic Rules, 1945.

AYUSH Premium Mark is based on WHO's GMP guidelines covering herbal medicines.

For any manufacturer to qualify for AYUSH Mark Certification, compliance to the domestic regulations is a pre-requisite.

The products are certified post regulatory approval given by State Licensing Authority of the state government concerned.

BAIL REFORMS

Structure, organization and functioning of the Executive and the Judiciary Ministries and Departments of the Government;

Why in News?

Recently, the supreme court called for the Union Government to introduce a special enactment in the nature of a "Bail Act" to streamline the grant of bail.

ABOUT

What is bail?

"The setting free of the defendant by releasing him from the custody of law and entrusting him to the custody of his sureties who are liable to produce him to appear for his trial at a specific date and time".

A person accused of a bailable offence is entitled to bail as a matter of right. Similarly, persons accused of non-bailable offence may be granted bail at the discretion of Court, on application.

The main purpose behind the denial of bail is that the person can help the police during investigation and not tamper evidence, threaten the witness or impede the course of justice. **The bail may be granted at the discretion of the Court** depending on the charge against the person and progress of the case.

A person seeking bail must furnish a bond of necessary value before he is released. He is granted bail on the condition that he

presents himself as and when required by the investigating authority and not leave the Country till the trial is complete. The amount of bail should be reasonable and not excessive.

In a criminal justice system,

Bail denotes provisional release of accused in Criminal Case in which court the trial is pending and the Court is yet to announce judgement

Interim bail

Interim bail is granted for

Do you Know?

Cognizable offences are those in which the investigating authority can arrest the accused **without an arrest warrant**. Non-cognizable offences are those in which the investigating authority cannot arrest an accused without an arrest warrant.

bail is its fundamental aspect. The existence of bail means that the legal system of a country is based on the principle of a fair and reasonable trial. In this principle, a person is not deprived of their liberties

TYPES OF OFFENCES

The Indian Penal Code divides offences into four categories, namely

1. non-cognizable and bailable
2. cognizable and bailable
3. cognizable and non bailable
4. non cognizable and non bailable.

Cognizable and non bailable offences, which, it is alleged, is open to misuse by the police officers.

TYPES OF BAIL

Regular Bail

a **short period of time** and it is granted before the hearing for the grant of regular or anticipatory bail.

Anticipatory Bail

If any person has reason to believe that he/she may be arrested for non-bailable offence, he/she may apply to Sessions court or High court for anticipatory bail praying that in the event of arrest, he/she shall be released on bail.)Section 438 Cr.PC.(

Grounds for Cancellation of Bail

In general, grounds for bail cancellation are interference or attempt to interfere with the due course of administration of Justice, or evasion or attempt to evade the course of justice or abuse of the liberty granted to him.

When the accused is

granted bail under Section (2)167 for the prosecution being at default for not completing the investigation within 60 days after the defect being cured by chargesheet being filed, the bail may be deemed to be cancelled on the ground that reasonable grounds do exist for the accused committing a non-bailable offence. It is necessary for him to be arrested and taken into custody.

Strong grounds are necessary to cancel the bail and are to be made out in the charge-sheet.

Possibility of the accused might flee the country.

Possibility of the person Trying to escape from the court proceedings.

LEGAL STATUS OF BAIL IN INDIA

The term bail has not been defined in the Criminal Procedure Code

The word has been used in the Cr.P.C. several times and remains one of the most vital concepts of the criminal justice system

Cr.P.C categorises criminal offences into bailable and non

21 of Constitution of India.

Article :22 Protection Against Arrest and Detention.

Right to be informed of the grounds of arrest.

Right to consult and be defended by a legal practitioner.

Right to be produced before a magistrate within 24 hours, excluding the journey time.

Right to be released after 24 hours unless the magistrate authorises further detention.

268th Report of Law commission - on Bail Reforms

Recommendations on-

- Decongesting Indian jails
- The need to impose the "least restrictive conditions."
- Fair and evidence based bail practices
- Decisions about custody or release should not be influenced by factors such as gender, race, ethnicity, financial conditions or social status,

Grounds for Rejection of Bail

The gravity and severity of the offence and the nature of accusation

Possibility that the person who is accused will hamper the evidence or there is a likely situation that they will attempt to meet the victims or witnesses.

Possibility of accused might be obstructing the proceedings of due course of justice.

bailable

Constitutional Provisions against Indiscriminate Arrests

Article :20 Protection against indiscriminate arrest

Article :21 Protection of Life and Personal Liberty

Detention of an individual infringes the Right to Life and Liberty guaranteed under Article

Need for a comprehensive Bail Law in India

CrPC, despite amendments since Independence, largely retains its original structure as drafted by a colonial power over its subjects.

Clogging of bail pleas of several undertrial prisoners including activists, leaders and journalists

Magistrates do not necessarily exercise their discretionary powers uniformly

Uniformity and certainty in the decisions of the court are the foundations of judicial dispensation

The culture of too many arrests ,especially for

older judgement delivered in July 2021 on bail reform)**Satender Kumar Antil vs CBI.**(

Principles of Criminal Procedure - The ruling is

of indiscriminate arrests to magistrates ignoring the **rule of” bail ,not jail** “to a colonial mindset.

Best Practices around the world

- The Bail Act of the United Kingdom ,1976 ,prescribes the **procedure for granting bail** .A key feature is that one of the aims of the legislation is” reducing the size of the inmate population.“
- The law also has provisions for **ensuring legal aid for defendants**.
- The Act recognises a” **general right “to be granted bail.**

non-cognisable offences ,is unwarranted.

Even for cognisable offences ,arrest is not mandatory and must be ”necessitated“

SUPREME COURT’S VIEW ON BAIL

A two-judge Bench issued certain clarifications to an

essentially a reiteration of several crucial principles of criminal procedure.

On account of clogging of undertrials ,the Supreme Court underlined that arrest is a draconian measure that needs to be used sparingly.

Theoretically ,the court also linked the idea

In **Maneka Gandhi vs .Union of India** ,the Supreme Court reminded everyone that if someone’s liberty is deprived without any due process ,it must be considered an act of punishment.



MEDIATION BILL

Why in news?

The Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice (Chair: Mr. Sushil Kumar Modi) submitted its report on the Mediation Bill, 2021 on July 13, 2022. The Bill was introduced in Lok Sabha in December 2021.

About - Mediation-

Mediation (is an alternate dispute resolution mechanism) is a voluntary process in which parties try to settle disputes with the assistance of an independent third person (the mediator). A mediator does not impose a solution on the parties but creates a conducive environment in which they can resolve their dispute. The mediation process depends on the choice of parties, and there are no strict or binding rules of procedure.

Benefits of mediation include its voluntary and non-adversarial nature, the flexibility and confidentiality of the process, its speed and cost effectiveness, and the finality of consensual settlements. As a mode of ADR, mediation may also help reduce the case burden on courts.

The Mediation Bill -

The Mediation bill was introduced in Rajya Sabha in December, 2021, with an aim to reduce the pendency of cases

in courts. The Bill mandates pre-litigation mediation in civil and commercial disputes.

The Bill requires persons to try to settle civil or commercial disputes through mediation before approaching any court or tribunal. A party may withdraw from mediation after two mediation sessions. The mediation process must be completed within 180 days, which may be extended by another 180 days by the parties.

The Mediation Council of India will be set up. Its functions include registering mediators, and recognising mediation service providers and mediation institutes (which train and certify mediators).

Mediation Council of India: The Council will consist of a chairperson, two full-time members (with experience in mediation or ADR), three ex-officio members (including the Law Secretary, and the Expenditure Secretary), and a part-time member from an industry body.

The Bill lists disputes that are not fit for mediation (such as those involving criminal prosecution, or affecting the rights of third parties). The central government may amend this list.

If the parties agree, they may appoint any person as a mediator. If not, they may apply to a mediation service provider to appoint a person from its

panel of mediators.

Agreements resulting from mediation will be binding and enforceable in the same manner as court judgments.

Issues with the Bill -

- Mandatory Pre-litigation mediation
- Timeline for mediation is long
- Disputes not fit for mediation to be modified by Central Government resulting in excessive delegation
- Composition of Mediation Council of India may consist of persons with experience in Alternate Dispute resolution other than Mediation.
- Multiple regulating authorities for mediation service providers and institutes.
- No provision for cases of breach of confidentiality.
- The Bill does not apply to international mediations conducted outside India. The Singapore Convention provides a framework for cross-border enforcement of settlement agreements resulting from international mediation.

Alternate Dispute Resolution -

Alternate dispute resolution (ADR) refers to means by which disputes are settled outside the traditional court system.

In India, modes of ADR include arbitration, negotiation, mediation, and Lok Adalats.

Need for Alternate dispute Resolution

1. Amicable and friendly resolution of disputes
2. Speedy disposal of trials in the context of burdened judiciary
3. Economic settlement of disputes
4. Improves ease of living and ease of doing business
5. Faster settlement of disputes

Merits of ADR

- ◆ In the case of arbitration, the parties can select what procedural and domestic rules will be applied to their dispute.
- ◆ Attorneys and expert witnesses are very expensive. ADR offers to resolve the case quickly without much delay and incurs less expenses.
- ◆ ADR allows the parties to work together with a neutral arbitrator or mediator so that the dispute can be resolved quickly and the transacting parties are satisfied by the conclusion.
- ◆ ADR process can be initiated at any time, whenever disputing party takes recourse to ADR.
- ◆ ADR programs are not rigid.
- ◆ ADR can be used to reduce the gravity of contentious issues between the parties.

Demerits of ADR

1. With the exception of arbitration, alternative dispute resolution processes do not always lead to a resolution. That means you could spend time and money and still end up going for litigation process.
2. Unfamiliarity of process is a factor causing obstruction in ADR.
3. The remedies established or given out to parties cannot be binding to future cases which means that remedy for one cannot be taken as a guiding stone for another.\

Other Legislations of ADR in India

1. Section 89 of the Civil Procedure Code, 1908 - if it appears to court there exist elements of settlement outside the court then court formulate the terms of the possible settlement and refer the same for: Arbitration, Conciliation, Mediation or Lok Adalat.
2. Arbitration and Conciliation Act, 1996 - modernization of The Arbitration Act, 1940, which dealt with only domestic arbitration.

The Legal Services Authority Act, 1987 - passed in 1987 to encourage out-of-court settlements; to provide free and competent legal services to the weaker sections of the society to ensure that opportunities for securing justice are not denied to any citizen. Lok Adalat assumed statutory recognition under this act.

Arbitration

- dispute submitted to arbitral tribunal
- less formal than trial
- rules of evidence may be relaxed
- award mostly binding, generally cannot appeal arbitrator's decision, however, exceptions exist and are mentioned in the Arbitration and Conciliation Act 1996.
- generally, little scope for judicial intervention

Conciliation

- less formal form of arbitration
- impartial third party assists parties to reach settlement
- parties may or may not accept conciliator's recommendations
- if accepted by both parties, settlement is *final and binding*

Mediation

- impartial *mediator*; mutually selected by parties, helps parties reach mutually accepted solution
- does NOT decide dispute, or suggest solutions, helps parties *communicate* and arrive at solutions/compromise themselves
- non-binding unless compromised is reached a binding agreement is signed by parties
- control of outcome lies with parties involved

Negotiation

- no statutory recognition in India
- non binding; discussions initiated without third party mediator
- aims to arrive at negotiated settlement of dispute
- most common method of ADR
- occurs in business, NPOs, legal proceedings, between nations, in personal situations (*divorce, marriage, parenting etc.*)

Lok Adalats

- known as the PEOPLE'S COURT
- pending cases (civil and criminal) may be referred to Lok Adalats by a court of law
- parties must agree to submit to decision of Lok Adalats
- person deciding case has role of statutory conciliator
- decision is binding and cannot be appealed
- do not have any jurisdiction to deal with cases of non-compoundable offenses

**Lok Adalats alone have disposed more than 50 lakh cases every year on average in the last three years.*



INTERNATIONAL RELATIONS



What's Inside?

1. LANCANG-MEKONG COOPERATION
2. MYANMAR/MALAYSIA-INDIA-SINGAPORE TRANSIT (MIST) SUBMARINE CABLE SYSTEM
3. ASIAN GAMES 2023
4. NORD STREAM 1
5. A GLOBAL ORDER CAUGHT UP IN A SWIRL OF CHAOS
6. ARAB SPRING AND TUNISIA PROTESTS

LANCANG-MEKONG COOPERATION

Why in news?

On July 4, the seventh Lancang-Mekong Cooperation (LMC) Foreign Ministers' Meeting was held in Bagan, Myanmar.

About

The grouping is a Chinese led sub regional cooperation mechanism that includes the countries of the Mekong Delta. The LMC consists of six countries: China, Cambodia, Myanmar, Laos, Thailand, and Vietnam.

The central purpose of the format is for China to manage water flow from its hydropower dams with the other riparian states.

As a platform for discussion and sharing ideas, it aims to push forward pragmatic projects to benefit the six countries.

China has built seven mega dams on the Lancang-Mekong and according to the US-based NGO International Rivers, 20 are under construction or planned in Yunnan, Tibet and Qinghai.

LMC Special

Fund: A fund was created in 2016 to aid in small and medium-sized projects by the Lancang-Mekong countries.

Lancang - Mekong

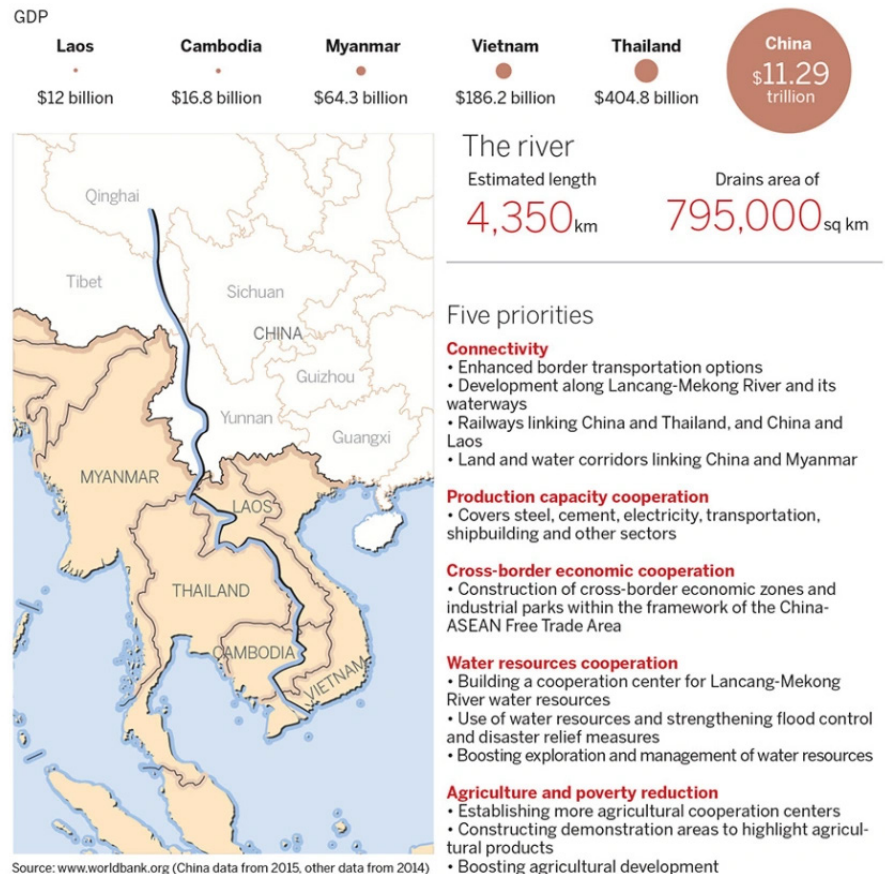
Lancang and Mekong differ in name, but refer to the same river—an important river running across China and the Indo-China Peninsula.

Originating from China's Qinghai-Tibet Plateau, the river has its source in Yushu of Qinghai Province. It is called Lancang River in China, while

in its downstream after flowing out of Yunnan Province, it is called the Mekong River, running across Myanmar, Laos, Thailand, Cambodia, and Vietnam, measuring 4,880 kilometers in length, covering an area of 795,000 square kilometers, and feeding altogether 326 million people.

The five Mekong River countries are home to 230 million people and boast a combined GDP over US\$600 billion and an average annual growth rate of nearly 7%. Linked by mountains and rivers, the six LMC countries feature cultural similarities, and

LANCANG-MEKONG RIVER COOPERATION



enjoy profound traditional good neighborliness and friendship and share closely inter-connected security and development interests.

MYANMAR/MALAYSIA-INDIA-SINGAPORE TRANSIT (MIST) SUBMARINE CABLE SYSTEM

Why in News?

The Union Environment Ministry's expert appraisal committee (EAC) on Coastal Regulation Zone (CRZ) matters has given approval for the MIST submarine cable system recently.

The cable system's landing site in Chennai, at Santhome Beach, was also given CRZ clearance.

The total cost of the MIST project was pegged at around USD 400 million. **MIST cable system**

will provide secure, reliable, robust and affordable telecom facilities in Asia. The main trunk route is from Tuas (Singapore) to Mumbai (India)

The 17 submarine cable projects mentioned above include six upcoming undersea cables which will connect with Mumbai between 2023 and 2025, including the MIST.

Two of them are Reliance Jio Infocomm's India Asia Xpress (IAX), connecting India to the Maldives, Singapore, Sri Lanka and Thailand, and the India Europe Xpress (IEX)

which will connect India to Italy via Saudi Arabia and Greece.

Others include the SeaMeWe-6 project, owned by a consortium of telecom providers, which will connect Singapore to France via India, Bangladesh, Maldives, and the multi-stakeholder-owned Africa2 cable, which will connect India with the United Kingdom via several African countries.

Benefits of Submarine communication cables

Following are the benefits or advantages of Submarine communication cables:

The undersea cables withstand rocky sea beds, marine animals, tsunamis, volcanoes and occasional shark.

The cables are designed to offer



About

Myanmar/Malaysia-India-Singapore Transit (MIST) Submarine Cable System is being executed by the global technology provider NEC Corp. It is an 8,100km-long undersea transnational **fibre optic cable system** connecting Mumbai to Singapore, via Chennai.

The communication network Cable will traverse undersea to connect India with other Asian countries such as Myanmar, Thailand, Malaysia and Singapore. This will be the 17th such optical fibre cable system to land in Mumbai, and is expected to be ready for service sometime in 2023.

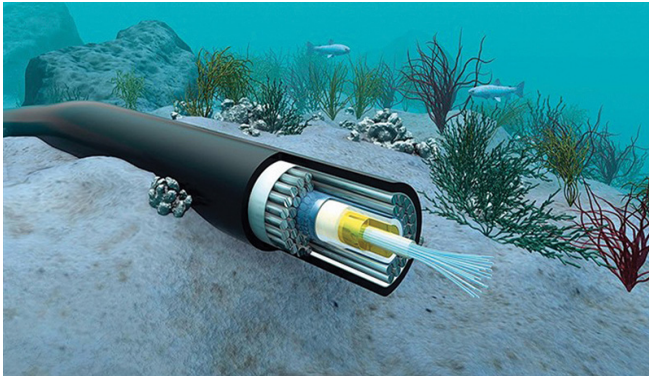
A submarine communications cable is a cable laid on the sea bed between land-based stations to carry telecommunication signals across stretches of ocean and sea.

higher bandwidth and low latency.

The cables offer high reliability and greater security as they are difficult to tap.

These cables are very cost effective compare to satellites.

These undersea cables i.e. Optical fiber cables offer low power loss and are immune to EM



(Electro-magnetic) interference.

They offer greater tensile strength compare to copper and steel fibers of same dimensions.

They are flexible and lighter in weight.

Submarine cables are essentially non-polluting.

Undersea cable network is designed to last for 25 years.



ASIAN GAMES 2023

Why in News?

China will host the 2022 Asian Games in 2023 after postponing the event in Hangzhou because of Covid.

About

The 19th edition of the Games was originally scheduled to be held in **Hangzhou** in September 2022 but were postponed in May due to rising COVID-19 cases in China.



The Asian Games is a multi-disciplinary sports

event held once in **every four years**. Athletes from **all Asian countries** are welcomed to participate in this event. It is the second largest multi-sport event after the Olympics.

The symbol for Asian Games is **rising sun with interlocking rings**. Nine nations have hosted the Asian Games so far and 46 nations have participated in the games. The Games follow the **sports programme of the Olympics, with athletics and swimming as core sports**, as well as featuring disciplines which reflect the diverse sporting culture of the continent such as **South East Asia's sepak takraw, South Asia's kabaddi and East Asia's wushu**.

In addition, it always includes 5 (five) regional sports and two (2) sports as proposed by Asian Games Organizing Committee (AGOC).

History of Asian games

Before the Asian Games, the Far Eastern Championship Games were held. After the Second World War, many Asian countries gained independence and

proposed the idea of Asian Games as a sporting event.

India is a founder member of Asian Games and also the host of the first Asian Games. **The first-ever Asian Games were held in New Delhi in 1951.** Since 1982, Olympic Council of Asia now regulates the Asian Games. Israel has been banned from participating in the games since 1981, following a decision from the Olympic Council of Asia.

Place in focus

Hangzhou lies less than 200 kilometres (120 miles) from the country's biggest city Shanghai.



NORD STREAM1

The Nord Stream 1, Germany's main source of gas from Russia, was shut down on July 11 for 10 days of scheduled maintenance work.

There are growing concerns in European countries that Russia would extend the temporary suspension of gas supplies in retaliation against the current sanctions levelled against Moscow.

While there have been attempts to reduce the dependence on Russian gas, Germany, which is Europe's biggest economy, continues to heavily rely on it.

The Nord Stream 2 pipeline, which was completed in September 2021 and would double the flow of direct Russian gas to Germany, was suspended in February, in response to the invasion of Ukraine.

The Nord Stream 1, however, continued to be used, whose flow of gas was slashed by 60% in mid-June by Moscow.

Russia had blamed the reduction of supplies on the delayed return of a turbine, which was being serviced by Germany's Siemens Energy in Canada, as reported by Reuters.

What is Nord stream1

Nord Stream 1 is a 1,224 km underwater gas pipeline that runs from Vyborg in northwest Russia to Lubmin in northeastern Germany via the Baltic Sea.

Majority owned by the Russian energy giant Gazprom, the pipeline is the primary route through which its gas enters Germany, as reported by Reuters.

It transports 55 billion cubic metres of gas a year, of which most goes directly to Germany, while the rest travels west and southwards through onshore links to other countries and into storage caverns, according to Reuters.

During its inauguration in November 2011, the former German chancellor Angela Merkel said the pipeline, which cost 7.4 billion euros, paved the way for a "safe, sustainable partnership with Russia in the future".

Germany is Russia's biggest European gas consumer, and most of it comes through the Nord Stream Pipeline. Its share of Russian gas supplies was 55% in 2021, and currently lies at 35%, according to Deutsche Welle.

A GLOBAL ORDER CAUGHT UP IN A SWIRL OF CHAOS

Various challenges that can alter world governance

Europe: Germany has steered European politics for almost two decades under Angela Merkel. But their new Chancellor has hardly any foreign policy experience. Without Germany's steadying hand, Europe would face significant challenges.

The United Kingdom: The UK is facing a political crisis ever since it came out of the EU.

Food crisis: Ukraine and Russia were generally viewed as the granaries of the world. The conflict between them placed few countries to confront the food scarcity.

Other issues: The other issues include the foreign exchange crisis, the spiralling cost of energy and fertilizers. Many of these problems may have existed earlier but have been aggravated by the ongoing conflict.

The impact is being felt now well beyond Europe. Outside Europe, the conflict is beginning to take on a different dimension, leading to the emergence of new patchworks of relationships.

Status of China

China-Russia ties: China and Russia appear to have further cemented their relationship and the situation is shifting towards a formal alliance. China's growing influence in the Pacific region, including in the Indo-Pacific, is further strengthened by the alliance with Russia.

China in the Middle East: The U.S.'s relations with Arab nations in West Asia appear to weaken. Russia and China are beginning to play key roles, with Iran as the fulcrum for establishing new relationships.

So various efforts of the United States, including the AUKUS (Australia, the U.K. and the U.S.) and the Quad, or the launch of another Indo-Pacific entity, viz., 'Partners in the Blue Pacific' (comprising the U.S., the U.K., Australia,

New Zealand and Japan) might not yield results.

What does India need to do?

Most Asian nations appear unwilling to take sides in the event of a conflict including India.

Ties with China and Russia: India cannot ignore the situation created by the stronger bonds between Russia and China. India will need to determine whether Russia can be expected to play a role as a 'trusted friend'.

Ties in the Middle-East: India-Israel relationship dates back to the 1990s, and the India-UAE relationship has flourished in the past couple of years. But India-Iran relations seem to have reached a stalemate.

India's membership in the I2U2 indicates that this body could become a 'feature' of the West Asian region, just like the Quad was for the Indo-Pacific.

Ties with other neighbourhood countries:

Afghanistan: India urgently needs to come to terms with a Taliban Afghanistan. Its attempt to devise a working relationship with Taliban Afghanistan is as yet in a very nascent stage.

Sri Lanka: The democratic upsurge in Sri Lanka presents India with a fresh set of problems. India needs to ensure that its advent does not result in the emergence of an anti-India atmosphere in Sri Lanka.

India's nuclear deterrence: There is a wide gap that exists today in regard to China and India's nuclear deterrent capabilities. The U.S. strategists blame India for its voluntary ban on testing and its 'no-first-use' doctrine.

India needs to guard against such attempts to undo the carefully negotiated and structured nuclear policy and doctrine, and should not be tempted by any anti-China western move on this front.

The view of geopolitical experts in the west is myopic since the Ukraine-Russia conflict is only one of the many strands altering the contours of world governance and there are many other

significant developments taking place in many other regions of the globe, which will have equal if not more relevance to the future of the international governance system.

ARAB SPRING AND TUNISIA PROTESTS

Recently, protests have erupted in Tunisia after a referendum was passed to approve a new Constitution that would turn the country back into a Presidential System.

Tunisian voters have approved a new Constitution that would turn the country back into a presidential system, institutionalising the one-man reign of President Kais Saied, who suspended the elected Parliament and awarded more powers to himself last year. Critics have warned that the new Constitution would erase whatever democratic gains Tunisia has made since the 2011 Arab Spring (Jasmine) revolution and push the country back into an authoritarian slide.

New Changes in Constitution:

While it leaves most of the personal freedoms guaranteed by the 2014 Constitution intact, the new charter seeks to take the country back to the presidential system, undercutting the powers of Parliament. The President will have ultimate authority to:

- Form a government
- Name Ministers (without Parliament's approval)
- Appoint judges
- Present legislation directly to the legislature.

All the above-mentioned changes would also make it practically impossible for the lawmakers to remove the President from office.

Arab Spring:

Arab Spring, wave of pro-democracy protests and uprisings that took place in the Middle East and North Africa beginning in 2010 and 2011, challenging some of the region's entrenched authoritarian regimes. The wave began when protests in Tunisia and Egypt toppled their regimes

in quick succession, inspiring similar attempts in other Arab countries.

Not every country saw success in the protest movement, however, demonstrators expressing their political and economic grievances were often met with violent crackdowns by their countries' security forces.

Tunisia:

Among the countries that saw popular protests bringing down dictatorships in 2011, Tunisia was the only one that witnessed a successful transition to democracy. The Arab Spring protests began in Tunisia in December 2010, leading to the fall of the regime of Zine El Abidine Ben Ali, who had been in power since 1987. It was also known as Jasmine Revolution in Tunisia. Ben Ali had to flee the country in the face of the mass uprising. Quickly, protests spread to other Arab countries such as Egypt, Libya, Bahrain, Yemen and Syria.

Other Countries:

While protesters brought down the 30-year-long dictatorship of Hosni Mubarak in Egypt, the revolution did not last long in that country.

In Libya, the protests against Mohammar Gaddhafi slipped into a civil war, which saw a military intervention by the North Atlantic Treaty Organisation (NATO). The NATO intervention toppled the Gaddhafi regime (the Libyan leader was later assassinated), but the country fell into chaos and anarchy, which continue to haunt it even today.

In Bahrain, the Shia majority country ruled by a Sunni monarchy, neighbouring Saudi Arabia sent troops to crush protests in Manama's Pearl Square.

In Yemen, President Ali Abdullah Saleh had to relinquish power, but the country fell into a civil war, leading to the rise of the Shia Houthis

rebels, who now control capital Sanah, and the subsequent Saudi attack on the impoverished country.

In Syria, protests turned into a proxy civil war, with President Bashar al-Assad's rivals backing his enemies, and his allies, including Hezbollah, Iran and Russia, backing the regime.



SOCIAL JUSTICE

What's Inside?

DRUGS AND COSMETICS ACT

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1. MISSION VATSALYA
2. GLOBAL GENDER GAP REPORT 2022
3. NIRF RANKING 2022
4. STATE RANKING INDEX NFSA 2022
5. NATIONAL CHILD LABOUR PROJECT SCHEME

MISSION VATSALYA

Why in news?

Recently, the central government issued guidelines to states about the Mission Vatsalya child protection scheme

About

Mission Vatsalya is an umbrella scheme for child protection services in the country implemented by the ministry of woman and child development.

Mission Vatsalya is a roadmap to achieve development and child protection priorities aligned with the Sustainable Development Goals (SDGs). It lays emphasis on child rights, advocacy and awareness along with strengthening of the juvenile justice care and protection system with the motto to 'leave no child behind'. The Juvenile Justice (Care and Protection of Children) Act, 2015 provisions and the Protection of Children from Sexual Offences Act, 2012 form the basic framework for implementation of the Mission.

Prior to 2009-10, there were three schemes being implemented under the Ministry namely,

- i) Programme for Juvenile Justice for Children in need of care and protection, and Children in conflict with Law;
- ii) Integrated Programme for street children; and
- iii) Scheme for assistance to homes for children (Shishu Greh).

All the three schemes were incorporated in



a single **centrally sponsored scheme** called the **Integrated Child Protection Scheme (ICPS)**. The ICPS was implemented by the Ministry since 2009-2010. The scheme was then renamed as “Child Protection Services” Scheme in 2017. The CPS Scheme has been now subsumed under Mission Vatsalya from 2021-22 onwards.

It will be implemented as a Centrally Sponsored Scheme in partnership with state governments and UT administrations, with a fund-sharing pattern in a 60:40 ratio.

However, for the eight states in the Northeast — as well as Himachal Pradesh, Uttarakhand and the UT of Jammu and Kashmir — the Centre and state/UT’s share will be 90:10

It will support State Adoption Resource Agencies (SARA), which will further support the Central Adoption Resource Authority (CARA) in promoting in-country adoption and regulating inter-country adoption. SARA shall coordinate, monitor and develop the work related to non-institutional care, including adoption in the state.

GLOBAL GENDER GAP REPORT 2022

Why in News?

The Global Gender Gap Index for 2022 was released by the World Economic Forum recently and it ranks India at 135 out of 146 countries. In 2021, India was ranked 140 out of 156 countries.

About

The Global Gender Gap index benchmarks the current state and evolution of gender parity across four key dimensions

1. Economic Participation and Opportunity
2. Educational Attainment
3. Health and Survival
4. Political Empowerment

According to the WEF it is the longest-standing index, which tracks progress towards closing these gaps over time since its inception in 2006.

On each of the four sub-indices as well as on the overall index the GGG index provides scores between 0 and 1, **where 1 shows full gender parity and 0 is complete imparity.**

India has approximately 662 million (or 66.2 crore) women. In 2022, India's overall score has improved from 0.625 (in 2021) to 0.629. "India's

(135th) global gender gap score has oscillated between 0.593 and 0.683 since the index was first compiled.

In 2022, India scored 0.629, which is its seventh-highest score in the last 16 years," states the report.

India's performance on different sub-indices

Political Empowerment (Percentage of Women in Parliament and in Ministerial Positions)

India ranks the highest (48th out of 146) in this particular index. Notwithstanding its rank, its score is quite low at 0.267. Some of the best ranking countries in this category score much better. For instance, Iceland is ranked 1 with a score of 0.874 and Bangladesh is ranked 9 with a score of 0.546.

Economic Participation and Opportunity (Percentage of women in labour force, Wage Equality for similar work, Earned income)

India ranks a lowly 143 out of the 146 countries in contention even though its score has improved over 2021 from 0.326 to 0.350. India's score is much lower than the global average, and only Iran, Pakistan and Afghanistan are behind India on this metric.

Educational Attainment (Literacy Rate and

INDIA'S REPORT CARD

Index/sub-index	2022 (146 countries)		2021 (156 countries)	
	Rank	Score	Rank	Score
Global Gender Gap Index	135	0.629	140	0.625
Political empowerment	48	0.267	51	0.276
Economic participation & opportunity	143	0.350	151	0.326
Educational attainment	107	0.961	114	0.962
Health and survival	146	0.937	155	0.937

Source: World Economic Forum

the Enrolment rates in Primary, Secondary and Tertiary education)

India ranks 107th out of 146, and its score has marginally worsened since last year.

Health and Survival (Sex ratio at birth and

Healthy Life Expectancy)

India is ranked the last (146) among all the countries. Its score hasn't changed from 2021 when it was ranked 155th out of 156 countries.

NIRF RANKING 2022

Recently, the Ministry of Education has released 7th Edition of National Institutional Ranking Framework (NIRF) Rankings 2022.

What is the National Institutional Ranking Framework?

The National Institutional Ranking Framework (NIRF) was approved by the Ministry of Education (Erstwhile Ministry of Human Resource Development) in September 2015.

Participation in NIRF was made compulsory for all government-run educational institutions in 2018.

Assessment on Five Parameters

1. Teaching, Learning and Resources (TLR)
2. Research and Professional Practice (RP)
3. Graduation Outcomes (GO)
4. Outreach and Inclusivity (OI)
5. Peer Perception.

11 Categories: Best institutions across 11 categories are listed out - overall national ranking, universities, engineering, college, medical, management, pharmacy, law, architecture, dental and research.

Reason for Launch: The subjectivity in the ranking methodology developed by QS World University Rankings and the Times Higher Education World University Ranking led India to

start its own ranking system for Indian HEIs on the line of Shanghai Rankings.

The long-term plan of NIRF is to make it an international league table.

No. of Participating Institutions in 2022: More than 7,000 institutes participated in NIRF Rankings.



STATE RANKING INDEX NFSA 2022

Odisha has been adjudged the top ranked State followed by Uttar Pradesh at the 2nd spot and Andhra Pradesh at third amongst the General Category States in 'State Ranking Index for NFSA'.

Among the Special Category states/UTs, Tripura stood first followed by Himachal Pradesh and Sikkim respectively.

Further, among the 3 UTs where Direct Benefit Transfer (DBT)- Cash is operational, Dadra and Nagar Haveli & Daman and Diu is the top ranked UT.

Union Minister of Consumer Affairs, Food & Public Distribution, Textiles and Commerce and Industry, Shri Piyush Goyal released the 1st edition of 'State Ranking Index for NFSA' during the conference of Food Ministers of States/UTs on 'Food Nutrition and Security in India' organized by Department of Food and Public Distribution here today.

Ms. Sadhvi Niranjana Jyoti, Minister of State for Consumer Affairs, Food & Public Distribution and Rural Development along with Secretary DFPD, Shri Sudhanshu Pandey along with Food Ministers and senior officials of 8 states were present at the daylong conference.

This "State ranking Index for NFSA"

attempts to document the status and progress of implementation of NFSA and various reform initiatives across the country, post consultation with states.

It highlights the reforms undertaken by States and UTs and create a cross-learning environment and scale-up reform measures by all states and union territories.

The present Index is largely focused on NFSA Distribution and will include procurement, PMGKAY Distribution in future.

The Index for ranking the states and UTs is built on three key pillars which covers the end-to-end implementation of NFSA through TPDS.

These pillars are: i) NFSA— Coverage, targeting and provisions of the Act, ii) Delivery platform, and iii) Nutrition initiatives. The detailed list of the States is at Annexure-I.

The National Food Security Act (NFSA) was enacted on July 5, 2013 and in order to celebrate the day, the conference was organized to deliberate and discuss nutritional security, food security, best practices followed in Public Distribution System, crop diversification, reforms in PDS and storage sector.

NATIONAL CHILD LABOUR PROJECT SCHEME

Government had initiated the National Child Labour Project (NCLP) Scheme in 1988 to rehabilitate working children in 12 child labour endemic districts of the country.

Objective of the Scheme:

This is the major Central Sector Scheme for the rehabilitation of child labour.

The Scheme seeks to adopt a sequential approach with focus on rehabilitation of children working in hazardous occupations & processes in the first instance.

Under the Scheme, survey of child labour engaged in hazardous occupations & processes has been conducted.

The identified children are to be withdrawn

from these occupations & processes and then put into special schools in order to enable them to be mainstreamed into formal schooling system.

Project Societies at the district level are fully funded for opening up of special schools/ Rehabilitation Centres for the rehabilitation of child labour.

The special schools/Rehabilitation Centres provide:

- Non-formal/bridge education
- Skilled/vocational training
- Mid-Day Meal
- Stipend @ Rs.150/- per child per month.
- Health care facilities through a doctor appointed for a group of 20 school

DRUGS AND COSMETICS ACT

The Union Health Ministry last week released a draft of a proposed The Drugs, Medical Devices and Cosmetics Bill, 2022 to replace the existing The Drugs and Cosmetics Act, 1940, and several sets of Rules by which the industry is currently run.

The draft focuses on regulating medical devices as a separate entity, makes provision for fines and imprisonment for injury and death related to clinical trials or investigations, and seeks to regulate e-pharmacies.

No provisions to regulate online pharmacies exist in the 1940 law or any of the Rules.

Online pharmacies are currently working completely outside the law. Most of these websites have perhaps a licence for a physical shop or storage unit.

In case of a violation, drug inspectors do not know under which provision of the law or Rule they can proceed against the websites.

Clinical trials and investigations

The draft Bill makes provisions for compensation to participants or their legal heirs for injury or death suffered in clinical trials and investigations for drugs and medical devices.

The draft also lays the onus of providing medical management for any injury

arising due to the trial on the investigators.

There is a new provision for imprisonment, and fine amounting to double the compensation amount if the compensation is not paid.

If the draft Bill becomes law, these provisions will be part of it, and will not be restricted to just clinical trial Rules.

The draft Bill prohibits clinical trials or clinical investigations of drugs and medical devices without permission from the central licensing authority. While companies have to seek permission from the regulator to conduct trials even now, this is not specifically mentioned in the existing law.

The draft provides for debarring the investigators and sponsors of a trial or investigation if the laid-down provisions are not followed.

But this is not enough, and the draft Bill has some critical gaps, independent experts say.

“Even the clinical trial Rules have fines, but a few lakhs is not enough to deter a big pharma company.

However, the provisions for imprisonment under the draft Bill might act as a deterrent. What the draft Bill completely misses is post-marketing surveillance, especially for medical devices, because implants can remain within a patient’s body for years.

There should also be provisions for recalling medicines or devices if any issues are detected. The Bill has to be for the protection of the people.

Malini Aisola, co-convenor of All India Drug Action Network, an independent collaboration of several non-government organisations working to increase access and improve the rational use of essential medicines.

Medical devices

Under the ambit of medical devices defined by the draft Bill are diagnostic equipment, their software, implants, devices for assistance with disabilities, life support, instruments used for disinfection, and reagents or kits.

The 1940 Act has medical devices as one of four categories of “drugs”.

To take decisions on regulating medical devices, the draft Bill provides for creating a Medical Devices Technical Advisory Board on the lines of the existing drugs technical advisory board, with people who have technical knowledge of the engineering of these devices, and members of the industry.

Other than officials of the Health Ministry, the board will have officials from the Department of Atomic Energy, Department of Science and Technology, Ministry of

Electronics and Information Technology, Defence Research and Development Organisation, and experts from the fields of biomedical technology, biomaterials, and polymer technology.

However, drawing on the existing law on drugs, the draft Bill defines provisions

for imprisonment or fines for “adulterated” or “spurious” medical devices.

The draft states that a medical device will be considered to be adulterated if it is rusted, corroded, filthy, putrid, or decomposed, packed or stored in unsanitary conditions, contains harmful

or toxic substances, or has any component or software removed making it unsafe.

The draft Bill deems a medical device to be spurious if it carries the label of a fictitious company or is purported to be of a manufacturer that has not manufactured it.

Economic Development & Agriculture



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PUBLIC - PRIVATE PARTNERSHIP

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PRODUCT LINKED INCENTIVE SCHEME

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FINANCIAL SERVICES INSTITUTIONS BUREAU

Why in the news?

The Central Government has decided to hereby constitute a Financial Services institutions Bureau (FSIB)

About

It is to be constituted for the purpose of recommending persons for appointment as whole-time directors and non-executive chairpersons on the Boards of financial services institutions and for advising on certain other matters relating to personnel management in these institutions.

Replacing Banks Board Bureau

The BBB was declared an incompetent authority last year by the Delhi High Court, when a general manager at state-owned National Insurance Company challenged the appointment of a person junior to him for Director's position by the BBB. Consequent to the order, 10–11 directors appointed by the BBB had to vacate office.

To end this logjam, the BBB had to be struck down and a new body, namely, FSIB had to be put

chairpersons (NECs) on the Boards of Directors in Public Sector Banks, financial institutions and Public Sector insurers (hereinafter referred to as “PSBs”, “FIs” and “PSIs” respectively);

To advise the Government on matters relating to appointments, **transfer** or extension of term of office and **termination** of services of the said directors;

To advise the Government on the desired **management structure** at the Board level for PSBs, FIs and PSIs;

To advise the Government on a suitable **performance appraisal system** for WTDs and NECs in PSBs, FIs and PSIs;

To build a **databank** containing data related to the performance of PSBs, FIs and PSIs;

To advise the Government on formulation and enforcement of a **code of conduct and ethics** for whole-time directors in PSBs, FIs and PSIs;

To advise the Government on evolving suitable **training and development programmes** for management personnel in PSBs, FIs and PSIs;

Composition of FSIB.-

The composition of FSIB shall be as follows, namely:-

The **Chairperson of FSIB**,

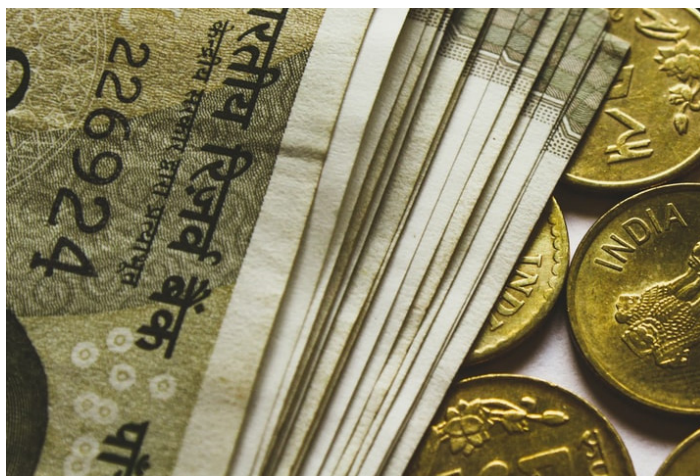
nominated by the Central Government,

a retired official from the banking sector or a regulatory institution, or a business person of repute with sufficient knowledge of the financial sector, or a person with at least 25 years of experience in public administration with experience in banking and the financial sector;

The Secretary in charge of the Department of Financial Services

The Secretary in charge of the Department of Public Enterprises;

The Chairperson of the Insurance Regulatory and Development Authority of India (IRDAI), and



in place vide approval from the Appointments Committee of the Cabinet, headed by the prime minister.

Functions.-

To recommend persons for **appointment** as whole-time directors (WTDs) and nonexecutive

if the office of Chairperson is vacant, the senior-most whole-time member of IRDAI;

1. A Deputy Governor of Reserve Bank of India (RBI);
2. Three persons with subject matter knowledge relating to PSBs and FIs, to be nominated by the Central Government, of whom-
3. Three persons with subject matter knowledge relating to PSIs, to be nominated by the Central Government,

Funding.-

INDIA'S RUPEE SETTLEMENT MECHANISM

Why in news?

Recently, the Reserve Bank of India (RBI) has put in place a mechanism to facilitate International Trade in Rupees (INR), with immediate effect. In order to promote growth of global trade with emphasis on exports from India and to support the increasing interest of global trading community in INR, it has been decided to put in place an additional arrangement for invoicing, payment, and settlement of exports / imports in INR

About -

All exports and imports under this arrangement may be denominated and invoiced in rupee (INR) and the exchange rate between the currencies of the two trading partner countries may be market determined

Indian importers undertaking imports via this mechanism will make payment in INR which will be credited into the Special Vostro account of the correspondent bank of the partner country, against the invoices for the supply of goods or services from the overseas seller. Indian exporters using the mechanism will be paid the export proceeds in INR from the balances in the designated Special Vostro account of the correspondent bank of the partner country.

However, banks acting as authorised dealers

For each financial year, the funds to be contributed by each of the three categories of financial service institutions (namely, PSBs, FIs and PSIs) towards meeting expenditure by FSIB shall be reckoned in proportion to the total number of their respective vacancies of WTDs and NECs at the beginning of the financial year. T

Further, the contribution of an individual PSI in the total contribution as reckoned for all PSIs shall be in the ratio of its net premium earned to the total net premium earned by the individual PSI to all PSIs for the financial year.

for such transactions would have to take prior approval from the regulator to facilitate this.



Merits of the mechanism

The mechanism is aimed at reducing demand for foreign exchange, by promoting rupee settlement of trade flows. While incremental for now these measures can be seen as useful long-term steps, which can enable greater use of INR in foreign trade

The RBI's move to set up International Trade Settlement mechanism in INR would facilitate trade with countries under sanction like Iran and Russia. Ever since sanctions were imposed on Russia, trade has been virtually at standstill with the country due to payment problems. As a result of the trade facilitation mechanism introduced by the RBI we can see the payment issues with

Russia easing.

The move would also reduce the risk of forex fluctuation specially looking at the Euro-Rupee parity. We see this as a first step towards 100% convertibility of Rupee.

Existing Mechanism:

If a company exports or imports, transactions are always in a foreign currency (excluding with countries like Nepal and Bhutan).

So, in case of imports, the Indian company has to pay in a foreign currency (mainly dollars and could also include currencies like pounds, Euro, yen etc.).

The Indian company gets paid in foreign currency in case of exports and the company converts that foreign currency to rupee since it needs rupee for its needs, in most of the cases.

Vostro Account -

A vostro account is an essential part of correspondent banking in which a foreign bank

acts as an agent providing financial services on behalf of a domestic bank.

Vostro accounts enable domestic banks to provide international banking services to their clients to have global banking needs.

For example, if an Indian life insurance company approaches a Russian bank to manage funds on the Indian life insurers' behalf, the account is deemed by the holding bank as a vostro account of the insurance company

From the foreign correspondent bank's point of view, the funds held on behalf of other banks are referred to as vostro accounts and are denominated in the local currency. From the perspective of domestic banks, the funds deposited at correspondent banks are referred to as nostro accounts. Nostro accounts are denominated in the foreign currency of the correspondent bank.

The surplus in vostro accounts can also increase investments in Indian government treasury bills and government securities.

DRAGON FRUIT

Why in news?

Following the footsteps of the Gujarat and Haryana Governments, the Centre has decided to promote the cultivation of dragon fruit, known as a "super fruit" for its health benefits

About-

The dragon fruit (*Hylocereus undatus*) is indigenous to the Americas. Its name comes from its appearance — leather-like skin and scaly spikes on the exterior of the fruits. It is also known as 'Pitaya', 'Pitahaya', strawberry pear, noblewoman and queen of the night throughout the world.

The dragon fruit plant is a member of the cacti family. It is hardy and grows in diverse climatic conditions with varied soils, especially in the semi-arid and arid regions of India. It prefers slightly acidic soil and can tolerate some salts in soil too.

As per the Indian Council of Agriculture Research, the fruit plant doesn't need much water and can be cultivated on dry land. The

cost of cultivation is initially high. but the plant doesn't need productive land, it gives maximum production from the non-productive, less fertile areas.

Dragon fruit is a fast-growing, semi-epiphytic vine that requires vertical pole-like support with a ring at the top. The economic lifespan of dragon fruit is more than 20 years and during the full-bearing period, plants are laden with fruits. It thus requires very strong and durable supporting structures.

In India, farmers cultivate three main varieties (by colour): White flesh with pink skin, red flesh with pink skin and white flesh with yellow skin. In well-managed orchards, the plants can begin bearing fruit from the first year of plantation but significant yields start from the third year onwards. In well-managed orchards, economic fruit yields start after three years and the average yield can be up to five tonnes per acre

Flowering and fruiting of dragon fruits

coincide with the monsoon season in India. Its flowers are hermaphrodites (male and female organs in the same flower) in nature and open at night. Nocturnal agents such as bats and hawk moths act as pollinators.

The low maintenance and high profitability of dragon fruits has attracted the farming community throughout India. This has led to



a steep increase in dragon fruit cultivation in Maharashtra, Karnataka, Andhra Pradesh, West Bengal, Telangana, Tamil Nadu, Odisha, Gujarat and the Andaman and Nicobar Islands, as well as in many north eastern states.

The country produces approximately 12,000 tonnes of the fruit every year.

The fruit can be exported to Persian Gulf countries, the European Union and the United States.

An increase in the area under cultivation and production of the dragon fruit will make India self-reliant by reducing imports. It is a fruit that is affordable and nutritious for the poor and adds to the income of the farmer.

Government initiatives for the promotion of Cultivation

The Gujarat Government recently renamed dragon fruit as kamlam (lotus) and announced an incentive for farmers who cultivate it.

The Haryana Government also provides a grant for farmers who are ready to plant this exotic fruit variety.

The Government of Maharashtra has taken the initiative to promote dragon fruit cultivation in different areas of the state by providing good quality planting material and subsidies for its cultivation through the Mission on Integrated Development of Horticulture (MIDH).

Mission on Integrated Development of Horticulture (MIDH).

1. MIDH is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo.
2. Nodal Ministry: The Ministry of Agriculture and Farmers Welfare is implementing MIDH with effect from 2014-15.
3. MIDH is implemented under Green Revolution - **Krishonnati Yojana.**

GUJARAT AGRO RADIATION PROCESSING FACILITY (GARPF)

Why in news?

The United States Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) has approved an irradiation

facility — Gujarat Agro Radiation Processing Facility (GARPF) set up by Gujarat Agro Industries Corporation Ltd (GAIC) near Ahmedabad.

About -

This facility will enable radiation for horticulture crops and encourage exports.

USDA-APHIS team, facilitated by the National Plant Protection Organization (NPPO) conducted an audit of GARPF, post which the USDA-APHIS granted its approval to the plant at Bavla in Ahmedabad on July 2, 2022. The total area of the facility is 6,750 sq m with a capacity to irradiate Mangoes at 6 MT/Hr.

The unit became the first plant in Gujarat to get USDA-APHIS approval for the export of mangoes and pomegranates.

Irradiation process

As per the norms, irradiation of mangoes is mandatory before exporting them to the US. The irradiation process is conducted under the supervision of quarantine inspectors from the US. “Mangoes will be exported directly from Gujarat after this approval,

Gujarat Agro Industries Corporation Ltd (GAIC) had set up a 1,000-kilocurie (kCi) multipurpose split type, palletised radiation

processing facility for agricultural and processed food products at Bavla under Rashtriya Krushi Vikas Yojana (RKVY) at an approximate cost of 20 crore in 2014.

The facility — implemented under the

Radiation processing of food involves controlled application of energy from ionizing radiations such as gamma rays, electrons and X-rays for food preservation.

Gamma rays and X-rays are short wavelength radiations of the electromagnetic spectrum. Gamma rays are emitted by radioisotopes such as cobalt-60 and caesium-137, while electrons and X-rays are generated by machines using electricity. They can penetrate deep into food materials and bring about desired effects.

Irradiation works by disrupting the biological processes that lead to decay. In their interaction with water and other molecules that make up food and living organisms, radiation energy is absorbed by the molecules they contact. The interaction of radiation and radiolytic products of water with DNA impair reproducing capacity of microorganism and insects as well as the ability of potato and onion to sprout.

guidance and technical support of Bhabha Atomic Research Centre (BARC), and the Board of Radiation and Isotope Technology (BRIT) — is the only facility in India that can irradiate products like onion, potato, cereals, pulses, Psyllium husk, pet food, meat, spices, dehydrated onions/dry vegetables, meat products including poultry, eggs, and medical products at a low, medium and high dose as per the requirement.

After USDA-APHIS approval of the facility, the irradiation facility can leverage the existing infrastructure of the State and achieve a synergy between the quality of mangoes, reduction in wastages and cost of transportation.

AGRICULTURAL CENSUS

Why in news?

The 11th Agricultural census (2021-22) was launched on July-28,2022.

About -

A census of agriculture is a statistical operation for collecting, processing and disseminating data on the structure of agriculture, covering the whole or a significant part of the country.

In India, the **Department of Agriculture and Farmers Welfare** has been organizing Agricultural Census, **quinquennially**, since 1970-

71 in collaboration with the States and Union Territories as part of programme of **World Census of Agriculture**

Agricultural census is the main source of information on a variety of agricultural parameters at a relatively minute level, such as the number and area of operational holdings, their size, class wise distribution, land use, tenancy and cropping pattern etc.,

This is the first time that data collection for agricultural census will be conducted on smartphones and tablets, so that data is available



in time

Most of their states digitised their land records and surveys which will further accelerate the collection of agricultural census data.

The use of digitised land records and the use of mobile apps for data collection will enable the creation of a database of operational holdings in the country

World Census of Agriculture

The **International Institute of Agriculture** conducted the first Programme for the World Census of Agriculture (WCA) in 1930.

Beginning with 1950, the **Food and Agriculture Organization (FAO)** of the United Nations has been preparing and advocating decennial World Programme for the Census of Agriculture (WCA).

Under the leadership of FAO, country participation in the WCA programme has been increased over time.

The present round of the Census programme (WCA 2020) covers agricultural censuses to be carried out by countries between 2016 to 2025.

Member countries provide the reports of their agricultural censuses to the FAO Statistics Division. At the end of each round of the WCA, FAO Statistics Division publishes consolidated information on structure of agriculture, for various countries, in the form of Reports.

BUSINESS REFORM ACTION PLAN REPORT

Why in News?

Department for Promotion of Industry and Internal Trade (DPIIT) released the Business Reform Action Plan (BRAP) 2020 report listing the top states to do business in India.

t

DPIIT since 2014 has been assessing States/UTs based on their performance in implementation of prescribed reforms in Business Reforms Action Plan (BRAP) exercise. Till date, assessment of States/UTs have been released for the years 2015, 2016, 2017-18 and 2019.

Significance

Measures aimed at eliminating physical interface with government officials, reducing discretionary processes, simplifying and digitization of regulatory processes, encouraging time-bound processes and other procedures that have been implemented as part of **BRAP**

recommendations will significantly reduce compliance costs and time involved for industry.

The use of information technology for **making approval process quicker, cost effective and time bound will go a long way in improving business facilitation.**

The BRAP 2020 includes 301 reform points covering 15 business regulatory areas such as:

1. Access to Information,
2. Single Window System,
3. Labour,
4. Environment,
5. Land Administration
6. Transfer of Land and Property,
7. Utility Permits and others.

Sectoral reforms with 72 action points spread across 9 sectors namely **Trade License, Healthcare, Legal Metrology, Cinema Halls,**

Hospitality, Fire NOC, Telecom, Movie Shooting and Tourism were introduced for the first time to expand the scope of reform agenda.

The broader aim is to **boost investor confidence, foster business friendly climate and augment Ease of Doing Business** across the country by introducing an element of healthy competition through a system of assessing states based on their performance in the implementation

of Business Reforms Action Plan.

This year states have been placed under the **four categories viz. Top Achievers, Achievers, Aspirers and Emerging Business Ecosystems.**

The objective is to create an **enabling framework wherein learnings can be shared amongst States/UTs which in turn will lead to a nationwide spill over of good practices.**

SUSTAINABLE DEVELOPMENT GOALS REPORT- 2022

Why in News?

Recently, the UN SDSN released the Global Sustainable Development Report, 2022.

Recently “Sustainable Development Goals Report, 2022” was released. The report provides a global overview of progress on the implementation of the 2030 Agenda for Sustainable Development.

About

The report states that urgent action is needed to achieve the 2030 deadline of Sustainable Development Goals (SDGs).

Global issues affecting SDGs

According to the report, all 17 SDGs, set at the UN General Assembly in 2015, are in jeopardy due to the **climate crisis, the COVID-19 pandemic** and an **increase in the number of conflicts** across the world.

The **pandemic and the Russia-Ukraine war** have already led to lowering of global economic growth projections by 0.9 percentage point. It is harming in more ways than one:

1. Raising food and fuel prices
2. Hampering global supplies and trade
3. Roiling financial markets

Impacted areas

The “**cascading and intersecting**” issues impact the **environment, food and nutrition, health, peace and security** as well as **education**, according to a UN statement on the report.

Environment:

Greenhouse gas emissions are set to rise 14 percent over a decade, antithetical to the Paris Agreement plan — a 2025 peak followed by a 43 percent decline by 2030 and Net 2050.

Energy-related **carbon dioxide emissions** shot up 6 percent, taking down gains due to COVID-19.

Economic shocks and poverty

Economic shocks due to the worldwide health emergency pushed **93 million** into poverty in **2020** alone, undoing “more than four years” work at alleviating poverty.

Education and healthcare

It also affected the **education and healthcare services** for millions. Immunisation, for example, has dropped for the first time in a decade even as deaths from malaria and TB have risen.

Cascading effect

The report also flagged threats to **food security** and aids, rising **unemployment** (especially among **women**) and increases in **child labour** as well as **child marriages**. The burden was greater on **least developed countries** and **vulnerable population groups**.

Undoing progress

The report details the reversal of years of progress in eradicating poverty and hunger, improving health and education, providing basic services, and much more.

ZERO COUPON ZERO PRINCIPAL INSTRUMENTS

Why in News?

Recently, Finance Ministry has declared Zero Coupon Zero Principal Instruments (ZCZP) as securities.

About

Finance Ministry has declared zero coupon zero principal instruments (ZCZP) as securities under the Securities Contracts (Regulation) Act, 1956.

Zero Coupon-Zero Principal instrument means an instrument **issued by a not-for-profit organisation** which shall be registered with the **social stock exchange (SSE)** segment of a recognised stock exchange regulated made by

The minimum issue size of ZCZP is 1 crore while the minimum application size is 2 lakh.

They carry a tenure equal to the duration of the project that is being funded. Such bond is particularly well suited to **investors who are looking to create social impact but do not wish to have their funds returned to them.**

However, such bonds **are not without risk**, as there is no guarantee that the social impact that an NPO (Non-Profit Organisation) is promising will in fact be created.

Accordingly, investors will be keen to channel funds only to credible and legitimate NPOs, which the SSE will ensure by requiring beneficiary NPOs

Social Stock Exchange (SSE)

The Social Stock Exchange (SSE) is a novel concept in India and such a bourse is meant to serve private and non-profit sector providers by channelling greater capital to them. The idea was floated by Finance Minister Nirmala Sitharaman in her Budget Speech 2019-20.

SSE will be a separate segment of the existing stock exchanges. Social enterprises eligible to participate in the SSE should be entities -- NPOs and for-profit social enterprises -- having social intent and impact as their primary goal.

the Securities and Exchange Board of India (SEBI).” In simple words, neither any interest is paid nor principal is repaid under ZCZP.

Features of ZCZP

ZCZP bonds can be traded on a recognised stock exchange regulated by SEBI.

to report on social impact in a standardised format.

Benefits of the Move

Experts say this step will help many organisations including corporates to utilise their fund marked for social responsibility; non-profit organisations to get funds in a more transparent manner.

ALIBAUG WHITE ONION

Why in News?

The Alibaug white onion was given the Geographical Indication (GI) tag, bringing worldwide recognition to its medicinal properties.

About

Alibaug, is a coastal town, just south of Mumbai, in the state of Maharashtra which is known for its beautiful beaches.

Local farmers have preserved the seed for over two centuries. The onion is also mentioned in a government gazette published in 1883.

What is the specialty?

The soil of Alibaug taluka has low sulphur content.

The onions have low pungency, sweet taste, 'no tear' factor, low pyruvic acid, high protein, fat and fibre content, besides high antioxidant compounds (quercetin).

It boosts immunity, helps with insomnia, blood cleaning, blood pressure and used for the treatment of heart ailments, controlling cholesterol and creation of insulin.

About GI tag

It is an indication which is definite to a geographical territory.

It is used for agricultural, natural and manufactured goods.

The goods need to be produced or processed or prepared in that region.

The product must have a special quality or reputation.

The Geographical Indications of Goods (Registration and Protection) Act, 1999 provides registration and also protection of GI goods in India.

A registered GI tag prohibits a third party to use such products.

GI is a collective intellectual property right and is thus owned by all the producers within the defined GI territory.



TRADE INFRASTRUCTURE FOR EXPORT SCHEME (TIES)

Recently, Centre released 206 Crore to States for promotion of exports under TIES scheme. 27 export infrastructure projects approved under TIES scheme since 1st April 2019.

The Department of Commerce, Government of India is implementing the Trade Infrastructure for Export Scheme (TIES)

Objective

Assisting Central and State Government agencies in the creation of appropriate infrastructure for growth of exports.

Under the scheme, financial assistance in the form of grant-in-aid is provided to Central/ State Government owned agencies (or their Joint Ventures with major stake-holding by them) for setting up or up-grading export infrastructure in States/UTs.

The scheme can be availed by States through

their implementing agencies, for infrastructure projects with significant export linkages like Border Haats, Land customs stations, quality testing and certification labs, cold chains, trade promotion centres, export warehousing and packaging, SEZs and ports/airports cargo terminuses.

Negative List of Projects that will not be Considered under this Scheme

Projects which are covered under sector specific schemes like textiles, electronics, IT.

General infrastructure projects like highways, power etc.

Projects where an overwhelming export linkage cannot be established.

NITI AAYOG REPORT ON DIGITAL BANKS

NITI Aayog's report makes a case and offers a template and roadmap for a licensing and regulatory regime for digital banks.

It focuses on avoiding any regulatory or policy arbitrage and offers a level playing field to incumbents as well as competitors

Recommendations:

The report recommends a carefully calibrated approach, comprising the following steps:

Issue of a restricted digital bank licence (to a given applicant) (the license would be restricted in terms of volume/value of customers serviced and the like).

Enlistment (of the licensee) in a regulatory sandbox framework enacted by the Reserve Bank of India.

Issue of a 'full-scale' digital bank licence (contingent on satisfactory performance of the licensee in the regulatory sandbox, including salient, prudential and technological risk management).

The report also maps prevalent business models in this domain and highlights the challenges presented by the 'partnership model' of neo-banking—which has emerged in India due to a regulatory vacuum and in the absence of a digital bank licence.

The methodology for the licensing and regulatory template offered by the report is based on an equally weighted 'digital bank regulatory index'.

This comprises four factors—(i) entry barriers;

(ii) competition; (iii) business restrictions; and (iv) technological neutrality.

The elements of these four factors are then mapped against the five benchmark jurisdictions of Singapore, Hong Kong, United Kingdom, Malaysia, Australia and South Korea.

The Context for the Case of Digital Banks in India: Financial Inclusion

In recent years, India has made rapid strides in furthering financial inclusion, catalysed by the Pradhan Mantri Jan Dhan Yojana and India Stack.

However, credit penetration remains a policy challenge, especially for the nation's 63-million-odd MSMEs that contribute 30% to GDP, 45% to manufacturing output, and 40% to exports, while creating employment for a significant section of the population.

Over the past few years, thanks to digitization—ushered in by the Jan Dan-Aadhar-Mobile (JAM) trinity and Aadhaar—financial inclusion has become a reality for Indians. This has only been furthered by the Unified Payments Interface (UPI), which has witnessed extraordinary adoption.

UPI recorded over 4.2 billion transactions worth 7.7 trillion in October 2021. The platform approach taken by the government in conceptualizing UPI has resulted in valuable payment products being developed on top of it.

As a result, payments can now be made with a click not just at retail outlets but also peer to peer—completely redefining the way in which money is transferred between individuals.

COFFEE BOARD BLOCKCHAIN E MARKET PLACE

India is the only country in the world where entire coffee is grown under shade, handpicked and sun dried.

It produces one of the best coffees in the world, produced by small coffee growers, tribal farmers adjacent to National Parks and Wild Life

Sanctuaries in the Western and Eastern Ghats, which are two of the major bio-diversity hot spots in the world.

Indian coffee is highly valued in the world market and sold as premium coffees.

The share of farmers in the final returns from

coffee is very meagre.

Blockchain based market place app for trading of Indian coffees is intended to bring in transparency in the trade of Indian coffee, maintain the traceability of Indian coffee from bean to cup so as the consumer tastes real Indian coffee and the grower is paid fairly for his coffee produced.

This initiative will help in creating a brand image for Indian Coffee through traceability in reducing growers dependency on intermediaries by having a direct access to buyers for a fair price for their produce, in finding right coffee suppliers for exporters and within the stipulated time to meet the growing demands and in building a better trust and long term relationship due to increased visibility towards the traceability and transparency of the produce.

Coffee Board is collaborating with M/s Eka Plus, one of the global leaders in Digital Commodity Management platforms for Agriculture for development of Blockchain based marketplace

application.

Eka Plus have developed the application and a group of 15-20 coffee farmers, exporters, roasters, importers and retailers are already registered on the platform from India and abroad.

It is one of the few coffee block chain processor for coffee after France and Ethiopia in the world.

The stakeholder like coffee farmers, traders, coffee curers, exporters, rosters, importers and retailers register on the platform to make trade transactions.

The coffee farmer registers credentials like place where coffee is grown, details of the crop, elevation, certificates if any and any relevant information.

A block is created for each of the lot the farmer sells on the Blockchain. The credentials of the block/ lot will be stored on the Blockchain throughout its journey and are immutable.

SURAT MODEL OF NATURAL FARMING

In March 2022 PM Modi exhorted at least 75 farmers in each village to adopt the natural way of farming. Taking the leap, Surat District undertook a concerted and coordinated effort to sensitise and motivate different stakeholders and institutions like farmer groups, elected representatives, village-taluka-district committees, Agriculture Produce Marketing Committees (APMCs), Cooperatives, Banks etc, in the district to help farmers in

adoption of Natural Farming.

Subsequently, at least 75 farmers were identified in each Gram Panchayat and were motivated and trained to undertake Natural Farming.

This resulted in more than 40,000 farmers from over 550 panchayats taking up natural farming in a short span of time.

PUBLIC - PRIVATE PARTNERSHIP

Why in news?

It’s been 25 years since the public-private-partnership)PPP (model was introduced in India’s major ports .In July ,1997the Jawaharlal Nehru Port entered into the first agreement

well designed PPP distributes the risk to the party that is best suited to manage it and does so at least cost .It is a means to achieve efficiency and quality in provision of public goods such as infrastructure and

to the **mounting public debt** in India during1970 s and1980 s due to the first round of oil price rise .Lack of public finance meant reduced expenditure on infrastructure as well as delays in the completion of

<u>Public Private Partnership</u>	<u>Privatisation</u>
<p>A PPP project is funded and operated by virtue of a partnership between the government and one or more private sectors companies</p> <p>PPP projects typically involve transfer of public assets, delegation of governmental authority for recovery of user charges, private control of monopolistic services and sharing risks and contingent liabilities by the Government.</p> <p>Typically, a private sector consortium forms a separate company called “Special Purpose Vehicle (SPV)” to develop, build, maintain and operate the asset for the contracted period</p>	<p>Privatisation means a radical and irreversible change in the way a service is provided and in the ownership pattern</p> <p>Under privatization, the government loses its control over the privatized enterprise and the private player then aims for profit maximization and is not accountable to the public.</p>

with the private player Nhava-Sheva International Container Terminal within the Jawaharlal Nehru Port in Mumbai.

About

A Public Private Partnership) PPP (is a **risk-sharing relationship** between the public and private sectors based upon a shared aspiration to bring about a desired public policy outcome‘

It aims to implement **risk sharing structures** between the public and private partners .A

social services such as health, Education and other similar services.

The private sector provides the required services and bears the associated risks ,while the

government provides the land ,statutory backup, subsidies and tax breaks necessary for the successful implementation of the project.

A Brief history

The birth of Public Private Partnerships can be attributed

indispensable projects.

In such a scenario ,the introduction of PPP was seen as a golden key that would allow a rise in capital expenditure in these projects along with the additional benefits derived from the private sector such as efficiency ,cost reduction and timely completion of projects. Other benefits of PPP include accelerated and enhanced delivery of projects and wider social impact through efficient provision of public and quasi-

public goods.

Now 100% ,of the National Monetisation Pipeline target of Rs 6 trillion and 40% of the National Infrastructure Pipeline target of Rs 111 trillion is expected to be funded under PPP formats .That targets about Rs 50 trillion of private capital over the next five years.

Rationale behind Public Private Partnerships

1. Efficiency/Quality:
2. Volume of investments
3. Reduction in capital and operational costs
4. Improved service delivery
5. Competition among private players

PPP v .Privatisation

A clear distinction should be made between PPP mode and privatization .These two are completely different terms with distinct implications.

Models of Public Private Partnership) PPP(

Commonly adopted model of PPPs include

Build-Operate-Transfer (BOT)

Build-Own-Operate (BOO)

Build-Operate-Lease-Transfer (BOLT)

Design-Build-Operate-Transfer (DBFOT)

Lease-Develop-Operate (LDO)

Operate-Maintain-Transfer (OMT), etc.

Importance of India's port sector

India has the largest merchant shipping fleet among the developing countries and ranks seventeenth in the world in terms of gross registered tonnage) grt (and fifteenth in terms of deadweight tonnes.

Sea conveyance is the

thus affecting economic development

Further ,development of ports can directly influence employment opportunities as well as revenue generation for the state as taxes.

Need of PPP particular to Port sector-

The payback period of the investments in the port sector is longer and capital infusion only by government can stall social



cheapest way of transportation when considered in terms of fuel consumption and investment .During the past few decades the world has become increasingly environmentally conscious and ,with its lower energy consumption ,marine transportation is obviously more environmentally friendly than other means

Efficient port sector in India can attract significant foreign investments into several other sectors of the economy

Port sector development also has a large impact on the export competitiveness and final import prices,

and economic development in other respects

Technology infusion in the management of the ports can be effectively undertaken by private.

Client-Port Symbiosis for Port development and diversification

Productivity of labour in private sector is higher which can be utilised in PPP projects.

Avenues of PPP in port sector

Container Terminals

Bulk ,Break -Bulk , Multipurpose and specialised

cargo berths

Warehousing ,Container Freight Stations ,Storage Facilities and Tank Farms ,Dry Docking Facilities

Ship Repair Facilities

Leasing of equipment for port handling and floating crafts from private sector

Auxiliary Port Services like Pilotage ,Tugging and Mooring

Captive facilities for port based industries

Difficulties with regard to PPP

1. Lack of transparency and accountability
2. PPPs and public projects are not treated equally as regards performance
3. Monitoring and ensuring public service delivery
4. To check the abuse of monopoly by the private companies
5. Many projects are taken up by” Politically connected firms- “use of political connect to win contracts leading to renegotiating contracts causing drain of public resources

Recommendations to improve PPP efficiency

Vijay Kelkar Committee Report on Revisiting and Revitalising PPP Model:

1. Contracts need to focus more on **service delivery** instead of fiscal benefits.
2. Better identification and

allocation of risks between stakeholders

3. Improved **fiscal reporting practices** and careful monitoring of performance.
4. Cost effectiveness of managing the risk needs to be evaluated.
5. An institutionalized mechanism like the **National Facilitation Committee**) NFC (to ensure time bound resolution of issues.
6. Projects that have not achieved a prescribed percentage of progress on the ground should be scrapped .Re-bid them once issues have been resolved or complete them through public funds and if viable, bid out for Operations and Maintenance.
7. **Unsolicited Proposals** ”) **Swiss Challenge** (“**to be discouraged** to avoid information asymmetries and lack of transparency.
8. Set up an institution for invigorating private investments in infrastructure ,providing guidance for a national PPP policy and developments in PPP.
9. Ensure adoption of principles of good governance by the Special Purpose Vehicle) SPV.(
10. Discourage government participation in SPVs that implement PPP projects unless strategically essential.

11. Ministry of Finance to allow banks and financial institutions to issue Zero Coupon Bonds which will also help to achieve soft landing for user charges in infrastructure sector.

12. Ensure integrated development of infrastructure with roadmaps for delivery of projects.

Reviving PPPs in the port sector

Deregulation of tariffs

-While the tariffs for the Major Ports are regulated by the **Tariff Authority for Major Ports**) TAMP ,(the Non-Major Ports under the States are free to set their tariffs based on the competition .This has put the Major Ports in a disadvantageous position in offering competitive tariffs as compared to NonMajor Ports. The existing method of fixing tariffs by TAMP is contrary to international best practice and leads to various anomalies. This has also led to tariff differentiation between berths at the same port .The port tariffs needs to be deregulated in the commodities where sufficient competition is available.

Non -availability of required drafts in both the Major and Nonmajor Ports to handle the large size vessels may preclude the port sector from taking the economic benefits associated with handling of the large vessels .Hence ,Ministry of Shipping should **accelerate the pace of capital dredging**

and where the project size is large, private participation may also be explored along with the provision of VGF.

To enable the Ports in the public sector in attracting investment as well as leveraging the huge land resources lying unused with them, the Union Budget 2015-16 has proposed for corporatizing the Ports in the public sector to become companies under the Companies Act. This is expected to accelerate the investment in Major Ports and

create additional capacity in the Port Sector.

Conclusion -

The implementation of the public private partnership (PPP) program can be seen as a tool to overcome the challenges faced by the developing countries in their infrastructure development, sourcing of financial resources for the development and advancement of seaports etc. A mature PPP framework, along with a robust enabling ecosystem shall enable

the Government to accomplish, to a considerable extent, what our Prime Minister, has said “The Government has no business to do business” and thereby promote private sector investments and participation towards the nation building.

”Landlord “port

In the landlord port model, the public sector is responsible for port planning, acts as regulatory body, and owns port-related land and basic infrastructure. The infrastructure is typically leased to the private operating companies or to industries such as refineries, tank terminals, and chemical plants. The private port operators provide and maintain their own superstructure i.e. terminals (including buildings). They also purchase and install their own equipment on the terminal grounds and are responsible for the terminal operations.

Model Concession Agreement-

Model Concession Agreement is the core of public private partnership projects in India. It sets regulatory framework to implement PPP Public Private Projects (in India). There are MCAs for national highways, urban rail transit systems, state highways and ports.

For example, It lays down the terms and conditions for executing a road project till a private firm operate.

MCA addresses all issues related to a PPP framework like

1. Mitigation and unbundling of risks
2. Allocation of risks and returns
3. Symmetry of obligations between the principal parties
4. Precision and predictability of costs & obligations
5. Reduction of transaction costs and termination.

Key features of MCA:

Constitution of the **Society for Affordable Redressal of Disputes – Ports** (SAROD-Ports) as dispute resolution mechanism.

Providing an **exit route to developers** by way of divesting their equity upto 100% after completion of 2 years from the Commercial Operation Date) COD.

Under provision of additional land to the Concessionaire, **land rent has been reduced** from 200% to 120% of the applicable scale of rates for the proposed additional land.

Introduction of **Complaint Portal** for the use of port users.

PRODUCT LINKED INCENTIVE SCHEME

Why in news?

The Production Linked Incentive (PLI) scheme has led 61 companies in White Goods sector to set up components manufacturing plants pan India at 111 Locations across 14 States/UT.

Product Linked Incentive Scheme –

In order to boost domestic manufacturing and cut down on import bills, the central government in March this year introduced a scheme that **aims to give companies incentives on incremental sales** from products manufactured in domestic units.

The incentives are of diverse types: subsidies, monetary benefits, etc. The government offers PLIs to both foreign manufacturers and domestic companies. While foreign manufacturers are encouraged to start production in India, domestic companies are asked to expand their operations and export

Beneficiaries of the PLI scheme are shortlisted on the basis of their commitment towards achieving scale, while meeting other specified performance parameters, such as minimum investments and minimum incremental production growth. The scheme is fully self-sustaining as the benefit is given to the selected company only after investment and production have taken

place in India.

Need for the scheme –

At present, there is a growing demand for diversification of supply chains. Especially to avoid the dominance of China. The PLI Scheme by increasing production can reduce Chinese demands.

To expand the domestic production from local companies in various sectors and to make them competent in global exports

The idea of PLI is important as the government cannot continue making investments in these capital intensive sectors as they need longer times for start giving the returns. Instead, what it can do is to invite global companies with adequate capital to set up capacities in India.

The expansion of production can also cause employment generation.

The PLI Scheme provides enough support to Sunrise industries at their initial stage. Sunrise Industry: These are relatively new industries but growing fast at present. Further, these are expected to become important in the future. For Example, Solar energy industries, Food Processing Industries, etc.

Issues with the scheme-

Import protectionism

The sectoral breadth of the PLI programme reveals that the government is pursuing import-substituting industrialisation (ISI) by rewarding import-dependent industries. This clearly demonstrates the relationship between the PLI scheme and the import tariff policy, indicating that the PLI scheme is coordinated with trade policy so that the manufacturing sector enjoys a degree of protection from foreign competition. This strategy is similar to the “infant industry argument” where the government provides protection to domestic industry, critical in the national political economy.

Capital intensive bias

PLI system is intrinsically biased towards capital-intensive industries as opposed to employment-generating labour-intensive industries in which India holds a comparative cost advantage. This will inevitably push job creation to the back-burner, resulting in increasing socio-economic disparities. There have been requests to extend the scheme to many labour intensive sectors

Lack of distribution of resources

In selecting certain industries under the PLI scheme, the government appears to be “picking winners” rather than allowing market forces to distribute resources. This squarely falls under the ISI strategy. The government’s

capacity to “select winners” may be limited by administrative competencies and information processing to make evidence-based policy interventions, leading to misallocation of resources and promotion of oligarchies.

Thirdly, the PLI plan extends financial incentives to firms rather than the industry as a whole in order to scale up production, disregarding the capacity and heterogeneity of firms operating in each sector, thus creating deeper structural concerns within the given sector.

No Common Set of Parameters:

There were no common set of parameters to understand the value addition by companies that have received or are likely to receive incentives under the PLI scheme.

At present, different ministries monitor the value addition of their respective PLI schemes and there is no way to compare two different schemes. Also, there are various deliverables such as the number of jobs created, the rise in exports and quality improvement and there is no centralised database to gauge all these.

Crowding out effect :

PLI is essentially a production linked subsidy which would entail an

additional expenditure by the exchequer of the tune of 1.9 lakh crore, earmarked for the next five years. This entails fiscal expansion that may lead to crowding out of private investment thereby negating PLI induced investment in the economy.

Scheme may lead to appreciation of the domestic currency

In a fully flexible exchange rate regime, the subsidy support to domestic production may lead to **appreciation of the currency** to maintain the Balance of Payment of the

realise the full potential of PLI.

Suggestions

To make India a global manufacturing hub along with the PLI Schemes, certain reforms are necessary. These include,

Focus on supply chain co-location: The government has to encourage the Foreign firms under the PLI policy to co-locate (placement of several entities in a single **location**) with their established industrial ecosystems. This will reduce government expenditure to invest and develop the



economy. It can happen due to **increased domestic production competitiveness** as a result of the subsidy support. This can hurt exports and would be counter to the export promotion objective of the scheme. Therefore, some forex market intervention may be required to check the likely appreciation of the currency, to

ecosystems for the investor. This will bring the assemblers and component manufacturers together. So that, it reduces the effective cost of manufacturing.

Further, the government must also **focus on the service industry** also. As other countries like China focus on the development of both Manufacture and Service

sectors simultaneously in the long run.

India also needs to focus on other key challenges of the manufacturing sector through initiatives such as,

Reduction in costs– India also needs to consider reducing its factor costs of power and logistics.

Encouraging states to be competitive and not indulge in trade-restrictive practices like Job reservation for locals, etc.

Further, Implementing structural reforms such as Land reforms, etc.

Also, India needs to improve human capital to meet

the demands of the sunrise industries.

Profiting from Anti-Chinese Sentiments: The global players including the USA, Australia aims to diversify their supply chains and also raise allegations against China. India should utilize this golden opportunity to act fast to attract outgoing investment from China.

Conclusion

It is expected that, over the next five years, a manufacturing capacity of over \$150 billion and exports of \$100 billion will be tied up through the PLI scheme. Further, the government needs to rectify the challenges faced by Indian firms in manufacturing. Else India can become a global manufacturing hub of International companies.

Priority	Sectors	Implementing Ministry/ Department	Approved financial outlay over a five- year period, (in INR Crore/ Euro Millions)
1.	Advance Chemistry Cell (ACC) Battery	NITI Aayog and Department of Heavy Industries	18100/ 2129
2.	Electronic/Technology Products	Ministry of Electronics and Information Technology	5000/ 588
3.	Automobiles & Auto Components	Department of Heavy Industries	57042/6711
4.	Pharmaceuticals drugs	Department of Pharmaceuticals	15000/1764
5.	Telecom & Networking Products	Department of Telecom	12195/1435
6.	Textile Products: MMF segment and technical textiles	Ministry of Textiles	10683/1257
7.	Food Products	Ministry of Food Processing Industries	10900/1282
8.	High Efficiency Solar PV Modules	Ministry of New and Renewable Energy	4500/529
9.	White Goods (ACs & LED)	Department for Promotion of Industry and Internal Trade	6238/734
10.	Specialty Steel	Ministry of Steel	6322/744
11.	Mobile Manufacturing and Specified Electronic Components	Ministry of Electronics and Information Technology	40951/4817
12.	Critical Key starting materials/Drug Intermediaries and Active Pharmaceutical Ingredients	Department of Pharmaceuticals	6940/816
13.	Manufacturing of Medical Devices.		3420/402
Total			1,97,291/23210

GEOGRAPHY,

E NVIRONMENT,

B IODIVERSITY AND

DISASTER MANAGEMENT

What's Inside?

MARCH 22: THE WORLD WATER DAY

*GS-III Conservation, environmental pollution and
degradation, environmental impact assessment.*

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8. MILIUSA AGASTHYAMALANA
9. STATE ENERGY CLIMATE INDEX
10. NAIROBI FLY
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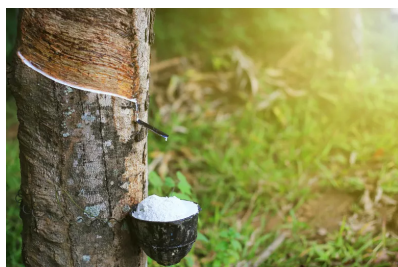
RUBBER BOARD

Why in news?

Rubber Board has created a quality certification system in mRube that all users can use at a low cost

mRube -

mRube is an e-trading platform launched by Rubber board for better price realization by growers and to upgrade the rubber trade system in the country by exploiting technology based application



mRube is contemplated to complement the existing trade system by bringing in more transparency

and market visibility. It could bring more business to the existing rubber dealers, processors and manufacturers.

Rubber Board has created a quality certification system in mRube that all users can use at a low cost. This feature was added to mRube to address the quality concerns of buyers who are far from the production points and do not have their own quality control mechanism. Invoking such a quality assurance mechanism is expected to transform the domestic rubber trade.

Rubber Board-

The Rubber Board is a statutory body constituted by the Government of India, under the Rubber Act 1947. The Ministry of Commerce & Industry, Government of India, established the Rubber Board in 1947 to strengthen the development of the rubber industry by offering financial assistance, consolatory and regulatory services.

The head office of the Rubber board is located in Kottayam, Kerala.

Functions -

Research, Training, technical advice and marketing for the development of the rubber sector

To secure the working conditions and welfare of the rubber workers

Advice the central government on matters such as import - export, participation in international conferences regarding rubber sector, participation in any scheme and others as conferred as a duty of the rubber board

Soil Fertility map of rubber growing areas-

The Rubber Board has launched a soil fertility map of rubber-growing areas in India.

Rubber is more sustainable than any other crop. Since the fertilizer recommendation of rubber is more specific, the chemical fertilizers that need to be added to the soil are less than other crops. Changes in soil fertility status over the years can be assessed as all the soil samples are geo-referenced, which is very important for the sustainability of rubber plantations

Rubber Research Institute of India undertook a study during 2012-20 to document the fertility status of rubber-growing regions in Kerala, Tamil Nadu, Karnataka, Goa, Maharashtra, Tripura, Assam, Meghalaya, Manipur, Arunachal Pradesh and West Bengal. District-wise soil fertility maps were generated through geospatial analysis for South India and state-wise fertility maps for northeast India

The spatial variability in the status of various nutrients is documented in the fertility maps to understand the soils of each region and adopt appropriate management practices. As all the soil samples are geo-referenced, changes in soil fertility status can be monitored over the years for sustainable management of rubber-growing soils.

Soil fertility mapping of rubber growing regions is the first for any crop in India. This is a critical step towards precision farming.

AZORES HIGH

Why in news?

Expansion of the “Azores high” – a high pressure system in the north Atlantic – is driving “unprecedented” changes in western Europe’s climate

About

Azores high, also called Bermuda high, Azores anticyclone, or Bermuda-Azores high, large persistent atmospheric high-pressure centre that develops over the subtropical region of the eastern North Atlantic Ocean during the winter and spring seasons in the Northern Hemisphere.

It is a subtropical high-pressure cell that moves westward during the summer and fall, when it is known as the Bermuda high. The Bermuda high is often associated with warm humid weather in the eastern United States during the summer months.

It is associated with anticyclonic winds in the subtropical North Atlantic. It is formed by dry air aloft descending the subtropics and coincides with the downward branch of the Hadley Circulation.

Formed by dry air descending in the subtropics, the Azores high causes winds to flow clockwise around northern Africa, the eastern coast of the US and western Europe. Westerly winds travelling across the North Atlantic pick up moisture, and draw it over Europe, where it falls as rain.

The size and intensity of the Azores high shifts year on year, driving variations in rainfall levels over the continent. As such, the study refers to the system as a “gatekeeper of precipitation” over Europe.

There is a robust increase in the frequency of extremely large Azores High Area (AHA) events and an overall expansion signal in the winter Azores High over the past 100 years.

Azores High expansion emerged after 1850 and strengthened in the twentieth century, consistent with anthropogenically driven warming

Impact of Azores high

The Iberian Peninsula region has been recording an annual drying of 5-10 millimeters per year per decade throughout the second half of the 20th century.

A further 10-20 percent drop in winter precipitation is expected by the end of the 21st century.

The agriculture of the Iberian region is most impacted by these changes.

Olive-growing regions in southern Spain will suffer a 30 percent decline in production by 2100

Cultivation areas in grape-growing regions across the Iberian Peninsula will shrink 25-99 percent by 2050 due to severe water deficits that will render land unsuitable for viticulture

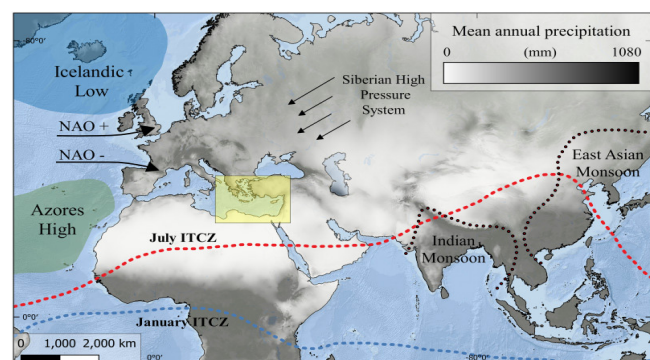
Climate change and Azores high

It was observed that the changing atmospheric conditions since the onset of the industrial era contributed to these regional hydroclimatic changes.

This was assessed by how the characteristics of the Azores High varied over the past 1,200 years.

Winters with an extremely large Azores High were significantly more common in the industrial era (since 1850) than in pre-industrial times.

Azores High expansion emerged after 1850 and strengthened in the twentieth century, consistent with anthropogenically driven warming.



LIGHTNING RESILIENT INDIA CAMPAIGN

Why in the news?

Lightning Resilient India Campaign has created a Lightning Atlas that details strikes across States/UTs with impacts

About-

Lightning Resilient India Campaign was launched on 26 March 2019 with an objective to reduce lightning deaths by 80% in three years. The campaign has been a joint initiative of Climate Resilient Observing systems promotion council (CROPC), India Meteorological department (IMD), and the Ministry of Earth Sciences (MoES). It carried the early warning services of IMD and knowledge products of various MoES Institutions to stakeholders and the community with value-added insights for more meaningful outcomes. This campaign was executed through multi-stakeholders' engagement at the national and state levels by including government departments, academia, NGOs and communities at large.

This combined effort has been able in bringing down deaths by more than 50% within a year. In addition, the scientific mapping of lightning in the whole of India as a country, as well as in all of its 37 states and union territories and in-depth analysis of data with citizen centric approach have been the key factors in effectively addressing the



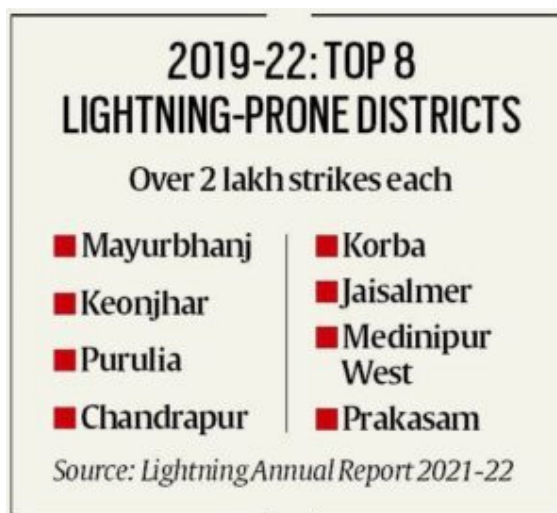
ANNUAL LIGHTNING REPORT 2020-2021

Lightning Resilient India Campaign 2019-2022

lightning hazard. Mapping of lightning in time and space brings out the hotspots and critical communities and assets to be saved.

Apart from the states that registered the highest number of lightning strikes, the Annual Lightning Report 2021-22 also listed states that witnessed increase and decrease in lightning strikes.

During the year 2021-2022, Goa witnessed a very high rise in lightning strikes, up to 338 per cent, followed by Pudducherry at 80.77 per cent,



Himachal Pradesh at 66.27 per cent, Karnataka 68.74 per cent, and Jammu & Kashmir 49.86 per cent.

Chandigarh and Sikkim showed maximum reduction in Cloud-to-Ground strikes by 40 per cent and 38.44 per cent, respectively. This was followed by Haryana 26.67 per cent, Bihar 23.4 per cent, Jharkhand 25.05 per cent, and Odisha 25.57 per cent.

In general, Madhya Pradesh continued to be at the top state with highest lightning strikes followed by Maharashtra and Chhattisgarh having witnessed more strikes compared to Odisha. West Bengal, Jharkhand, Karnataka, Uttar Pradesh, Tamil Nadu, Bihar, Andhra Pradesh, Gujarat and Rajasthan were found to witness more than two lakh Cloud-to-Ground lightning strikes.

The IMD has an app called 'Damini' that sends out early warning to the mobile owner as per the location of the device. "The need of the hour is to

enhance the appeal for far more capacity building programmes in view of the continued deaths.

Lightning

Scientifically, lightning is a **rapid and massive discharge of electricity** in the atmosphere some of which is directed towards earth. The discharges are generated in **giant moisture-bearing clouds that are 10-12 km tall**.

The base of these clouds typically lie within 1-2 km of the Earth's surface, while the top is 12-13 km away. Temperatures in the top of these

clouds are in the range of -35° to -45°C .

As water vapour moves upward in the cloud, the falling temperature causes it to condense. As they move to temperatures below 0°C , the water droplets change into small ice crystals.

They continue to move up, gathering mass until they are so heavy that they start to fall to Earth. This leads to a system in which, simultaneously, smaller ice crystals are moving up and bigger crystals are coming down.

KARAKORUM ANOMALY

Why in news?

Researchers have taken a significant leap toward solving the mystery of why few pockets of glaciers in the Karakoram Range are resisting glacial melt due to global warming, defying the trend of glaciers losing mass across the globe, with the Himalayas being no exception. They have attributed this phenomenon called 'Karakoram Anomaly' to recent revival of western disturbances (WDs).

About-

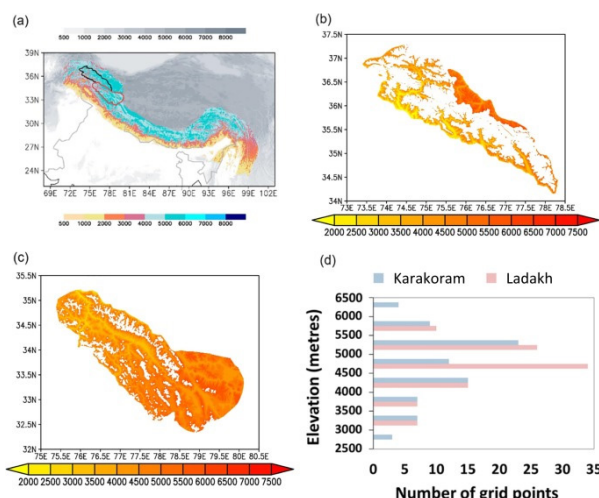
While glaciers have generally been losing mass and extent across the world and in the Hindu Kush-Himalayan (HKH) region, one subset of glaciers in the Karakoram has been sticking out like a sore thumb by defying this trend. Some glaciers in and around the range, northwest of the Tibetan Plateau, have actually been showing zero or positive mass balance changes. This "Karakoram Anomaly" has been giving glaciologists sleepless nights and climate deniers a rare straw to clutch at.

What is Karokoram Anomaly?

The 'Karakoram Anomaly' is termed as the stability or anomalous growth of glaciers in the central Karakoram, in contrast to the retreat of glaciers in other nearby mountainous ranges of Himalayas and other mountainous ranges of the world.

In a paper published in the American Meteorological Society's Journal of Climate, a

group claimed that the **recent revival of western disturbance has been instrumental in triggering and sustaining the Karakoram Anomaly since**



the advent of the 21st century. The study was supported by the Climate Change Programme of the Department of Science and Technology.

WesternDisturbances are the primary feeder of snowfall for the region during winters. The study suggested they constitute about around 65% of the total seasonal snowfall volume and about 53% of the total seasonal precipitation, easily making them the most important source of moisture. The precipitation intensity of WDs impacting Karakoram has increased by around 10% in last two decades, which only enhances their role in sustaining the regional anomaly

UNITED NATIONS' WORLD POPULATION PROSPECTS (WPP)

Why in news?

The World Population Prospects 2022 has projected that India will surpass China as the world's most populous country in 2023, while the global population will reach 8 billion this year.

About-

The report have been prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. It presents population estimates from 1950 to the present for 237 countries or areas, underpinned by analyses of historical demographic trends.

It does so by taking into account newly released national data to revise estimates of past trends in fertility, mortality or international migration.

UN WPP report has been published in a biennial cycle since 1951..

Findings on Global population

1. The world's population continues to grow, but the pace of growth is slowing down: The global population is expected to grow to around 8.5 billion in 2030, 9.7 billion in 2050 and 10.4 billion in 2100. In 2020, the global growth rate fell under 1% per year for the first time since 1950.

2. Rates of population growth vary significantly across countries and regions:

More than half of the projected increase in global population up to 2050 will be concentrated in just eight countries: the Democratic Republic of the Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines and the United Republic of Tanzania.

Disparate growth rates among the world's largest countries will re-order their ranking by size. The **46 least developed countries (LDCs) are among the world's fastest-growing**. Many are projected to double in population between 2022 and 2050.

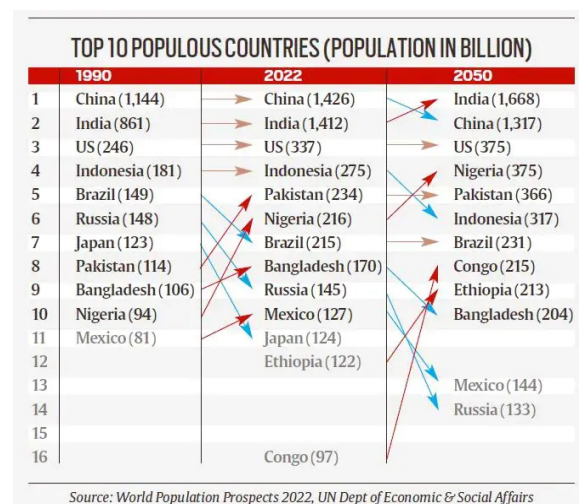
3. The population of older persons is increasing both in numbers and as a share of the total:

The share of the global population aged 65 years or above is projected to rise from 10% in 2022 to 16% in 2050.

4. A sustained drop in fertility has led to an increased concentration of the population at working ages (between 25 and 64 years), creating an opportunity for accelerated economic growth per capita: This shift in the age distribution provides a time-bound opportunity for accelerated economic growth known as the “**demographic dividend**”.

5. International migration is having important impacts on population trends for some countries:

For high-income countries between 2000 and 2020, the contribution of international migration to population growth (net inflow of



80.5 million) exceeded the balance of births over deaths (66.2 million).

For 10 countries, the estimated net outflow of migrants exceeded 1 million over the period from 2010 through 2021.

In many of these countries, the outflows were due to **temporary labour movements**, such as for

Pakistan (net flow of -16.5 million), India (-3.5 million), Bangladesh (-2.9 million), Nepal (-1.6 million) and Sri Lanka (-1.0 million).

In other countries, including the Syrian Arab Republic (-4.6 million), Venezuela (Bolivarian Republic of) (-4.8 million) and Myanmar (-1.0 million), **insecurity and conflict** drove the outflow of migrants over this period.

UN WPP Report v. Census projections

The Registrar General comes out with a

population projection based on the Census. The last such projection was released in 2019 and it was based on Census 2011. The Census projection is slightly lower than the UN projection

Policy Impacts projected from the report

Education

Employment

Skilling the youth

Standard of Living

Geriatric care

SAKURAJIMA VOLCANO

Why in news?

Recently, the Sakurajima Volcano erupted on Japan's major western island of Kyushu.

About-

Sakurajima is one of Japan's most active volcanoes and eruptions of varying levels take place on a regular basis.

It is an active stratovolcano.

The largest historical eruptions of Sakurajima took place during 1471-76 and in 1914.

Its eruption has been recorded since the 8th Century.

Due to its frequent deposition of ash on Kagoshima, and due to its explosive potential, it is considered as one of the very dangerous volcanoes.



Stratovolcano

A stratovolcano, also known as a composite volcano, is a conical volcano built up by many layers (strata) of hardened lava.

Unlike shield volcanoes, stratovolcanoes are characterized by a steep profile with a summit crater and periodic intervals of explosive eruptions and effusive eruptions, although some have collapsed summit craters called calderas. The lava flowing from stratovolcanoes typically cools and hardens before spreading far, due to high viscosity. They are among the most common types of volcanoes, in contrast to the less common shield volcanoes.

Two famous examples of stratovolcanoes are Krakatoa in Indonesia, known for its catastrophic eruption in 1883, and Vesuvius in Italy, whose catastrophic eruption in AD 79 buried the Roman cities of Pompeii and Herculaneum.

In modern times, Mount St. Helens in Washington State, USA and Mount Pinatubo in the Philippines have erupted catastrophically, but with fewer deaths.

STEEL ZERO

INITIATIVE

Why in news?

On July 14, 2022, the steel zero initiative was launched in India

About-

SteelZero initiative was launched in India by The international non-profit Climate Group, in

partnership with ResponsibleSteel,

It is a global initiative that brings together leading organisations to speed up the transition to a net zero steel industry. Steel is the world's most widely used material – but despite technologies existing for production to be decarbonised, steelmaking is currently one of the biggest emitters of CO₂ globally.

India is the second-largest producer of steel after China. Emissions from India's steel industry are projected to triple over the next three decades.

The country's push to meet its net zero targets will rely heavily on the decarbonisation of its steel sector.

SteelZero brings together businesses across the steel industry to make a public commitment



to buy and use 50% low emission steel by 2030,

INDIA HAS REGISTERED STERLING PERFORMANCE IN STEEL PRODUCTION AS PER STATISTICS RELEASED TODAY.

worldsteel ASSOCIATION

MARCH 2022 CRUDE STEEL PRODUCTION

TOP 10 STEEL-PRODUCING COUNTRIES				
	Mar 2022 (Mt)	% change Mar 22/21	Jan-Mar 2022 (Mt)	% change Jan-Mar 22/21
China	88.3	-6.4	243.4	-10.5
India	10.9	4.4	31.9	5.9
Japan	8.0	-4.3	23.0	-2.9
United States	7.0	-1.7	20.3	-0.4
Russia	6.6 e	-1.8	18.7	-1.2
South Korea	5.7	-6.1	16.9	-3.8
Germany	3.3	-11.8	9.8	-3.7
Turkey	3.3	-2.9	9.4	-4.7
Brazil			8.5	-3.2
Iran	2.3 e	-6.1	6.9	-4.4

setting a clear pathway to using 100% net zero steel by 2050.

India's state of steel production -

India was the **world's second-largest producer** of crude steel.

According to the ministry, the iron and steel industry globally accounts for around 8% of total carbon dioxide (CO₂) emissions on an annual basis, whereas India contributes 12% to the total CO₂ emissions.

The growth in the Indian steel sector has been driven by the domestic availability of raw materials such as iron ore and cost-effective labour. Consequently, the steel sector has been a major contributor to India's manufacturing output.

The Indian steel industry is **modern, with state-of-the-art steel mills**. It has always strived for continuous modernisation of older plants and up-gradation to higher energy efficiency levels.

The **National Steel Policy, 2017** envisage 300 million tonnes of production capacity by 2030-31. The per capita consumption of steel has increased from 57.6 kgs to 74.1 kgs during the last five years. The government has a fixed objective of increasing rural consumption of steel from the current 19.6 kg/per capita to 38 kg/per capita by 2030-31

Emission free steel production initiatives

Hydrogen Break Through Iron making Technology

Hisarna Technology

COURSE 50 project of Japan

SIDERWIN project

Indian Efforts -

Committing to **net zero by 2070** at Glasgow COP 26

The use of green hydrogen in producing iron and the use of **carbon capture utilisation and storage (CCUS) technologies** under discussion

Iron & steel industry in India are covered under the **Environment Protection Act (EPA)** as well as Environment Protection Rules &

Regulations enacted & published by Ministry of Environment & Forest (MoEF&CC). The steel companies are required to **install specified pollution control equipments/facilities** and also operate well within the prescribed Standards/ Norms in respect of air, water and noise pollutions as also solid waste generation & utilization.

National Action Plan on Climate Change

(NAPCC)- **National Mission for Enhanced Energy Efficiency (NMEEE) - Perform Achieve & Trade (PAT)** is the flagship scheme under NMEEE. PAT is a market based mechanism through certifications of energy savings which could be traded. PAT has become effective from April 2012. The PAT Scheme has so far covered 163 numbers of Iron & Steel Units in India (referred as Designated Consumers).

MILIUSA AGASTHYAMALANA

Why in News?

New species of *Miliusa* spotted in Agasthyamala

About

The evergreen forests of the southern Western Ghats are home to numerous endemic species including seven species of *Miliusa*.

Researchers have identified a new species of evergreen tree belonging to the genus *Miliusa* from the Agasthyamala biosphere reserve in the southern arm of the Western Ghats in Thiruvananthapuram.

The tree, which grows to a height of about six to nine metres with drooping branches, has been named *Miliusa agasthyamalana* after the location where it was found.

The identification of the new species has also taken the total number of species of *Miliusa* found in India to 25.

The new species, *Miliusa agasthyamalana* is morphologically similar to *Miliusa paithalmalayana* and *Miliusa wightiana*, but detailed studies revealed it to be distinct from all other hitherto known species of *Miliusa*

Miliusa agasthyamalana has brown bark, and solitary flowers which are yellowish-pink in colour. Flowering and fruiting occur during April-July.

Only two mature trees have been spotted so far in its natural habitat, underscoring the need for conservation.



STATE ENERGY CLIMATE INDEX

NITI Aayog has launched the State Energy & Climate Index-Round I on 11th April 2022 at an event chaired by Dr. Rajiv Kumar, Vice Chairman, NITI Aayog

The State Energy & Climate Index (SECI) Round I ranks the states' performance on 6 parameters, namely:

DISCOM's Performance

Access, Affordability and Reliability of Energy

Clean Energy Initiatives

Energy Efficiency

Environmental Sustainability; and

New Initiatives.

The parameters are further divided into 27 indicators. Based on the composite SECI Round I score, the states and UTs are categorized into three groups: Front Runners, Achievers, and Aspirants.

The states have been categorized based on

size and geographical differences as larger states, smaller states, and UTs.

Gujarat, Kerala, and Punjab have been ranked as the top three performers in the category of larger states. Goa, emerged as the top-performing state in the smaller states category, followed by Tripura, and Manipur.

Among UTs, Chandigarh, Delhi, and Daman & Diu/Dadra & Nagar Haveli are the top performers. Detailed state profiles and scorecards have been included in the report which provides a comprehensive snapshot of each state and union territory on the various parameters.

This edition of the report reveals that some of the important data is not available at the state level.

There is a need to develop a robust mechanism for capturing such data so that it can be incorporated in future editions of the report.

NAIROBI FLY

Nairobi Fly is the common name for two species of rove beetle and genus Paedrous, native to East Africa.

The beetles contain a corrosive substance known as pederin, which can cause chemical burns if it comes into contact with the skin.

Because of these burns, the Nairobi fly is sometimes referred to as a "dragon bug."

These flies usually destroy crops and eat pests. These flies do not bite, but if disturbed while sitting on anyone's skin, they release a potent acidic substance that causes burns.

The flies should be gently blown off and not disturbed or touched. The area where these flies sit should be washed with soap and water to prevent infection from spreading.

The major feature of 'Nairobi Fly' is their red and black colour. Mild cases of this infection result in slight redness in the skin.

In Moderate cases, itching will start after 24 hours. More severe cases causes fever, nerve pains, joint pains or vomiting.

As of now, The college administration said that the infected students are undergoing medication and recovering and the administration is looking into the matter.

The administration is taking further safety measures and is spraying pesticides to stop further infection.

MALABAR PIED HORNBILL

The mass movement of Malabar pied hornbills from Pillappara area in Athirappilly has raised concern among environmentalists.

They doubt large-scale felling of trees in the nearby plantation areas might have prompted the birds, which are sensitive to disturbances, to move from the area.

About Malabar pied Hornbill

Malabar pied hornbill (*Anthracoceros coronatus*) is endemic to low-elevation riparian forests.

Aided by conservation measures, its population has increased in the Athirappilly-Vazhachal forest area.

All the four south Indian species of hornbills — Great hornbill (State bird), Malabar pied hornbill, Malabar grey hornbill, and Indian grey hornbill — are found in the riparian forest of Athirappilly-Vazhachal area.

However, it has been reported that huge trees in the plantation areas under the Athirappilly, Vazhachal and Charpa forest areas have been cut

in the past two years.

According to local people, hundreds of huge trees such as aanjili (wild jack), chadachi (dhaman), erul, and mani maruthu in more than 20 ha in Athirappilly were felled recently.

Activists fear human presence and the sound of huge machinery might have disturbed the birds.

As hornbills are sensitive, such disturbances can also be attributed to their movement.

There were proposals to retain the miscellaneous growth of huge trees in the teak plantations for not disturbing the natural habitat of hornbills. In some areas, such trees have been retained.

The main threat to hornbills apart from poaching is the lack of suitable nesting locations.

Natural hollows of tall canopy trees serve as their nests.

Forests undisturbed by human presence are vital for the survival of these birds.

RARE FLIGHT OF ANTARCTIC'S LIGHT-MANTLED ALBATROSS TO T.N. COAST

Rameswaram and adjoining islets of the Gulf of Mannar Marine National Park on the Adam's Bridge (Ram Setu) are known for their unique marine ecosystem.

But the region grabbed the attention of international researchers as Asia's first sighting of Light-mantled Albatross (*Phoebastria palpebrata*), a species native to the Antarctic seas, was recorded here.

The sighting, 'First Asian record of Light-mantled Albatross *Phoebastria palpebrata* (Foster, 1785) from Rameswaram Island, Tamil Nadu,

India', has been published in the Journal of Threatened Taxa, and researchers are looking for more insights into what is regarded as a surprising transcontinental tour of the Antarctic seabird.

H. Byju and S. Ravichandran of the Centre of Advanced Sciences in Marine Biology, Annamalai University, and N. Raveendran, a birder from the Madurai-based Iragukal Amritha Nature Trust, were behind the finding in 2020.

Checklists across Asia were examined to confirm the rare sighting.

This record from the Palk Bay side of Rameswaram island is significant, and it throws up new challenges to researchers once these Antarctic birds migrate to Asia.

This finding also directs researchers to look for bird migration away from the well-known and established routes and sites.

The location where the Albatross was spotted is part of the Palk Bay and near the Gulf of Mannar, an 'Important Bird Area' on India's southeast coast, he adds.

It was an unexpected sighting and we initially believed it to be a Slender-billed Gull.

As the nearest recorded site of the bird is around 5,000 km away from Rameswaram, the researchers feel a change in atmospheric pressure could have been among the reasons for the Albatross to land on an Indian shore.

Of late, changes in the wind pattern triggered by global warming are bringing strange birds to our region.

A lot of changes are happening in the wind pattern owing to the increase in atmospheric temperature.

Birds like albatross, that are known to be

on the move, use the wind and save their energy during flights.

Even slight changes in the temperature can cause drastic changes in the wind pattern and birds could land in far-away places that are not familiar to them.

The Light-mantled Albatross, with broad pelagic habits, maintains a circumpolar distribution in the Southern Ocean.

It breeds on several sub-Antarctic islands, such as Macquarie Islands, Heard Island and McDonald Islands (Australia), South Georgia Island (British

Overseas Territory), Prince Edward Islands (South Africa), Iles Kerguelen and Iles Crozet (France), and Auckland, Campbell, and Antipodes Islands (New Zealand).

The species forage over cold Antarctic waters as far south as the pack ice in summer.

Listed as a 'Near Threatened' species by the International Union for Conservation of Nature, Light-mantled Albatross has a worldwide population of 21,600 breeding pairs, according to an estimate in 1998.

MANAS TIGER RESERVE

The Manas Tiger Reserve in Assam has 2.4 tigresses for every tiger, the annual wildlife monitoring results of the trans-boundary wildlife preserve has revealed.

According to the latest camera trapping assessment stipulated by the National Tiger Conservation Authority (NTCA), the 2,837.31 sq. km reserve with a critical tiger habitat area of 536.22 sq. km has 52 adult tigers along with eight cubs.

This is an increase of eight adults and four cubs over 2021, the results released by Pramod Boro, the Chief Executive Member of the Bodoland Territorial Region on Global Tiger Day showed.

The assessment said 29 tigers were

"repeated" from 2021 while 23 new tigers were reported.

The gender of 27 tigers could be properly ascertained – eight of them males and 19 females, giving a sex ratio of 1:2.4, which is "positively skewed towards females from the ecological point of view", a statement from NTCA.

The Manas Tiger Reserve authorities had set up 381 camera trap stations with support from conservation partners World Wide Fund for Nature-India, Wildlife Trust of India and Aaranyak.

Forest guards and foresters deployed in different anti-poaching camps in Manas collected data on line transects from the

backs of elephants using an Android-based digital platform.

The information collected was analysed at the Field Directorate of Manas and validated by the NTCA's Tiger Cell in Dehradun's Wildlife Institute of India.

This analysis, which will form a baseline

for all future assessments, showed Manas has an estimated 3,220 hog deer, 2,613 elephants, 1,656 wild buffaloes, 1,174 gaurs or Indian bison and 804 sambhars.

The Manas Tiger Reserve is contiguous with the 1,000 sq. km Royal Manas National Park in Bhutan.

AMARNATH FLASH FLOODS

Recently, a cloudburst near the shrine of Amarnath in Kashmir Himalayas triggered flash floods and killed several people.

Flash floods:

Flash floods are sudden surges in water levels generally during or following an intense spell of rain. These are highly localised events of short duration with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood. The flood situation worsens in the presence of choked drainage lines or encroachments obstructing the natural flow of water. It may be caused by heavy rain associated with a severe thunderstorm, hurricane, tropical storm, or meltwater from ice or snow flowing over ice sheets or snowfields.

Cloudburst:

A cloudburst refers to an extreme amount of rain that happens in a short period, sometimes accompanied by hail and thunder.

The India Meteorological Department (IMD) defines a Cloudburst as unexpected precipitation exceeding 100 mm (or 10 cm) per hour over a geographical region of approximately 20 to 30 square km. All instances of cloudbursts involve heavy rain in a short period but all instances of heavy rain in a short period are not cloudbursts if they do not fit this criterion.

The relative humidity and cloud cover is at the maximum level with low temperature and slow winds because of which a high amount of clouds may get condensed at a very rapid rate and result in a cloudburst. As temperatures increase, the atmosphere can hold more and more moisture and this moisture comes down as a short very

intense rainfall for a short duration probably half an hour or one hour resulting in flash floods in the mountainous areas and urban floods in the cities.

Why do Cloudbursts occur in Hilly areas?

Experts have said it is difficult to predict when exactly a cloudburst will occur. But they are more likely to occur in mountainous zones mainly because of terrain and elevation. This is because, in hilly areas, sometimes saturated clouds ready to condense into rain cannot produce rain due to



the upward movement of the very warm current of air. Instead of falling downwards, raindrops are carried upwards by the air current. New drops are formed and existing raindrops increase in size.

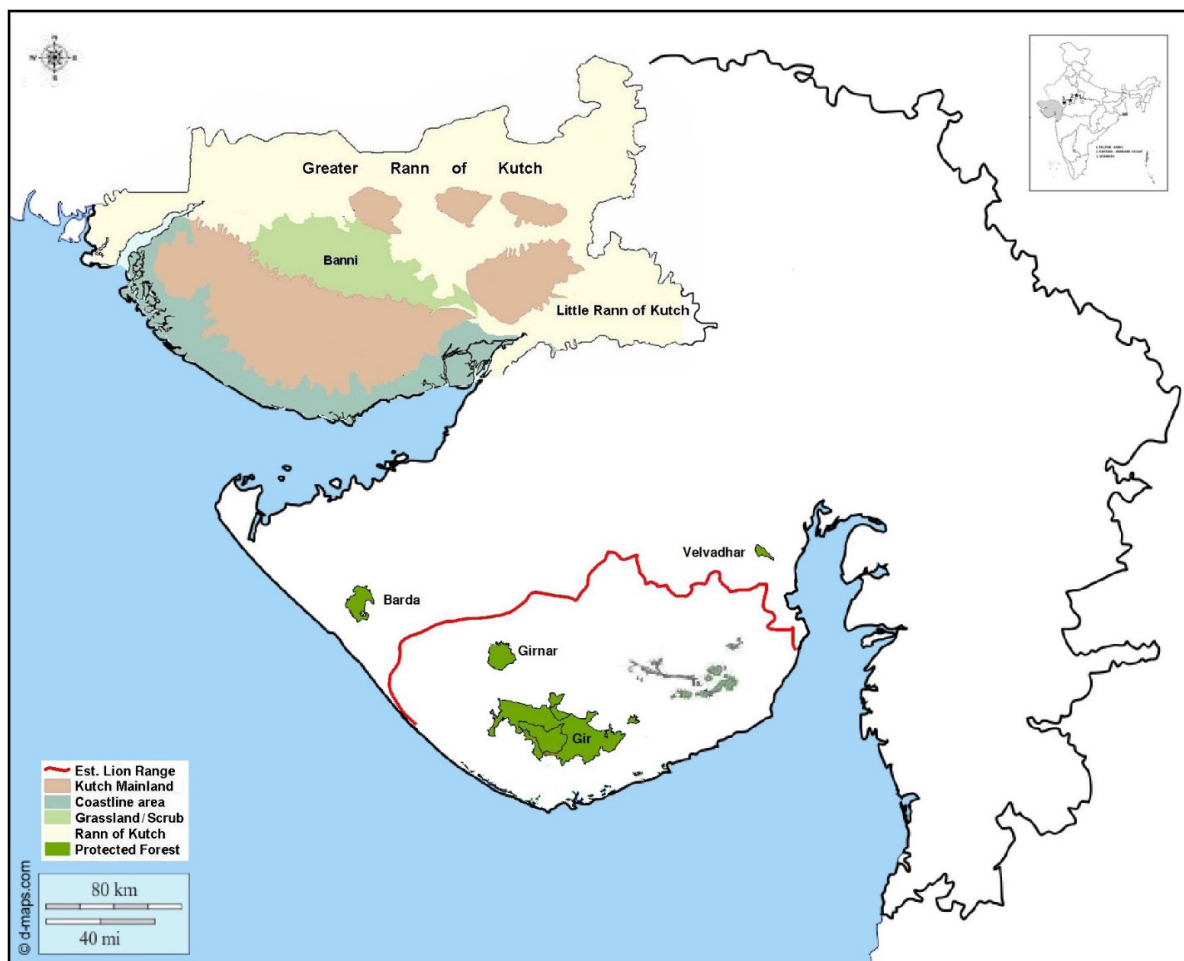
After a point, the raindrops become too heavy for the cloud to hold on to, and they drop down together in a quick flash.

RESTORATION OF BANNI GRASSLANDS

The Gujarat forest department plans to restore 10,000 hectares of the Banni grasslands in the coming year and every year in the coming decade.

Banni Grassland is situated near the Great

by the Indus and other rivers over thousands of years. Two ecosystems, wetlands and grasslands are juxtaposed in Banni. The vegetation in Banni is sparse and highly dependent on rainfall. It is dominated by low-growing forbs and graminoids,



Rann of Kutch in Gujarat. It is considered to be the largest Grassland in Asia. The grassland spreads over 2,618 kilometers and accounts for almost 45% of the pastures in Gujarat.

The word 'Banni' comes from the Hindi word 'banai', meaning made. The land here was formed from the sediments that were deposited

many of which are halophiles (salt-tolerant), as well as scattered tree cover and scrub. The grasslands were traditionally managed by a system of rotational grazing.

The area is rich in flora and fauna with 192 species of plants, 262 species of birds, several species of mammals, reptiles, and amphibians. In 1955, the court notified the grassland will be

a reserve forest. In, 2019, the NGT ordered to demarcate the boundaries of the Banni grassland and restricted non-forest activities. Wildlife Institute of India (WII) has identified this grassland reserve as one of the last remaining habitats of the cheetah in India. Also, a possible reintroduction site for the species.

Threats:

1. Heavy uncontrolled grazing
2. Widespread ingress of *Prosopis Juliflora* (a harmful exotic tree species)
3. Dams constructed on rivers flowing

towards Banni

4. Periodic occurrence of droughts
5. Continuous increase in soil salinity.

In the restoration program, the main target is the removal of the exotic invasive *Prosopis Juliflora* in the region. Interestingly, they were introduced to Banni, also by the forest department itself in the 1960s in an effort to check the ingress of salt flats here. With a huge 20-lakh livestock population that depends on the grassland, the second part of the project envisions the production and storing of fodder for local farming and pastoral communities that live here.

AMERICAN BULLFROG AND BROWN TREE SNAKE

Two invasive species, the American bullfrog and the brown tree snake, cost the world an estimated \$16 billion between 1986 and 2020, by causing problems ranging from crop damage to power outages, according to a study published in Scientific Reports.

The brown-and-green frog known as *Lithobates Catesbeianus* which can weigh over 2 pounds (0.9 kilos), had the greatest impact in Europe.



The brown tree snake, or *Boiga irregularis*, has multiplied uncontrollably on Pacific islands including Guam and the Marianna Islands, where the species was introduced by U.S. troops in World War II. The snakes have at times been so abundant that they caused power outages by crawling on electrical equipment.

This signals the need for investment controlling global transport of invasive species to avoid paying for mitigation after the invasions occur.



PLACES IN NEWS

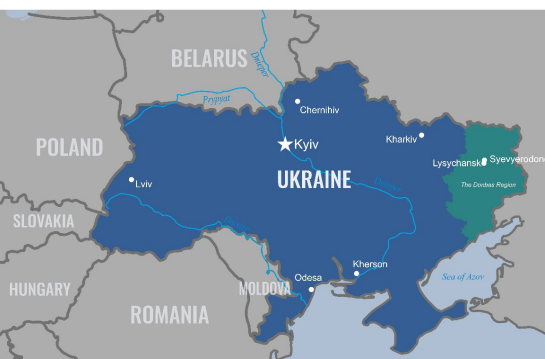
**Kramatorsk**

In Donetsk and Kramatorsk, Russia has likely attempted employment of PFM-1 and PFM-1S scatterable anti-personnel mines. The PFM-1 and PFM-1S are commonly referred to as 'Butterfly mines' or 'Green Parrots'.

Karakalpakstan

Protests in Karakalpakstan broke out over plans to revise the Uzbek constitution that would change the autonomous region's status and curtail its right to secede. Those plans have now been put on hold.

The name Karakalpakstan is derived from the Karakalpak people, an ethnic minority group of around 2 million. Karakalpak translates to 'black hat', referring to their traditional headgear. The Karakalpak people settled around the Amu Darya (a river that feeds into the Aral Sea) in the 18th century.

**Lysychansk**

Ukraine's forces have withdrawn from the bombed-out city of Lysychansk, prompting Russia to claim full control of the eastern Luhansk region, a key Kremlin war goal, but President Volodymyr Zelenskiy vowed to regain the lost territory.

**Belgorod**

Russia accused Ukraine of firing three cluster missiles at the city of Belgorod, near the Ukrainian border. Located near the Russia-Ukraine border, Belgorod lies along the upper Donets River where it is crossed by the Moscow-Kharkiv (Ukraine) and Sumy-Donets Basin railways.

DERECHO

Recently States of Nebraska, Minnesota and Illinois in the US were hit by a storm system called a derecho.

What is a derecho?

According to the US's National Weather Service, a derecho is “a widespread, **long-lived, straight-line windstorm**” that is associated with a “band of rapidly moving showers or thunderstorms”. The name comes from the Spanish word ‘la derecha’ which means ‘straight’.

Straight-line storms are those in which thunderstorm winds have no rotation unlike a tornado. These storms travel hundreds of miles and cover a vast area.

Being a warm-weather phenomenon, a derecho generally occurs in June and July. However, they are a rare occurrence as compared to other storm systems like tornadoes or hurricanes.

Where do derechos usually occur?

They mostly occur across central and eastern parts of the United States.

The May 8, 2009 “Super Derecho” was one of the “most intense and unusual derechos ever observed” in the US as it swept from Kansas to

Kentucky with wind speeds reaching up to 170 km/hr.

Why did the sky turn green during the derecho that hit US recently?

Severe thunderstorms result in a ‘green sky’ due to light interacting with the huge amount of water they hold.

It is believed that the big raindrops and hail scatter away all but the blue wavelengths due to which primarily blue light penetrates below the storm cloud. This blue then combines with the red-yellow of the afternoon or the evening sun to produce green.

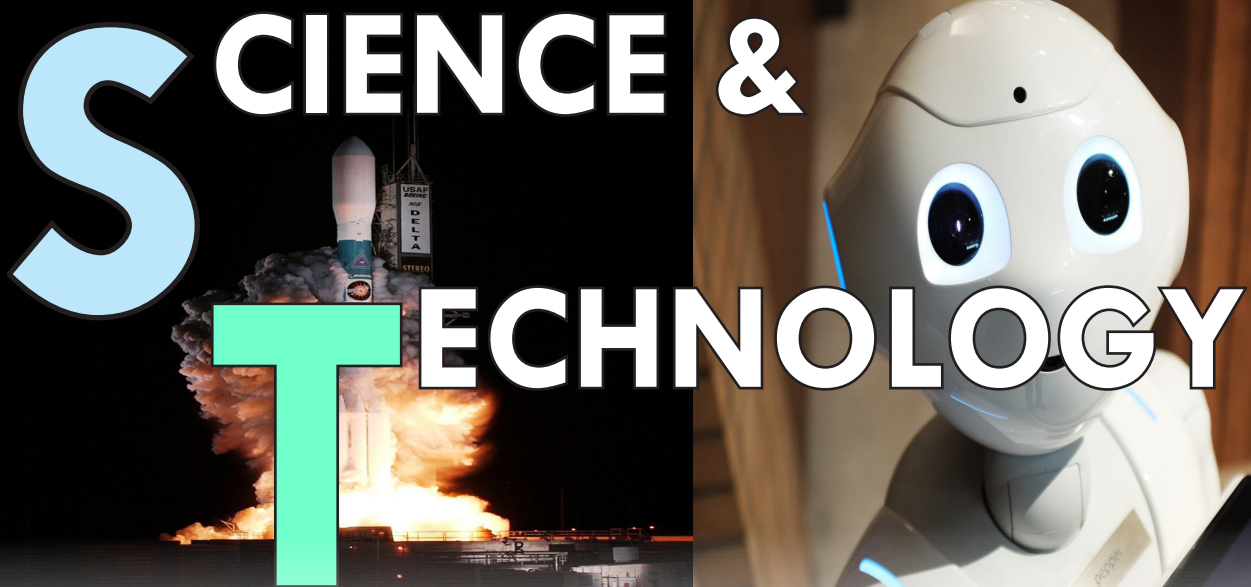
Three types of Derecho

A **progressive derecho** is associated with a short line of thunderstorms that may travel for hundreds of miles along a relatively narrow path. It is a summer phenomenon.

A **serial derecho**, on the other hand, has an extensive squall line – wide and long – sweeping across a large area. It usually occurs during spring or fall.

Hybrid ones have the features of both progressive and serial derechos.

SCIENCE & TECHNOLOGY



What's Inside?

PPOP-FAME

PSLV ORBITAL EXPERIMENTAL MODULE (POEM)

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FIBERISATION

TIANGONG SPACE STATION

ANTHRAX

PYTHAGOREAN

GEOMETRY IN VEDIC-ERA

ANEURYSM

BIOLUMINESCENCE

TIHAN

MARBURG VIRUS

NEW PATHWAY TO REGULATE NITRATE ABSORPTION
IN PLANTS

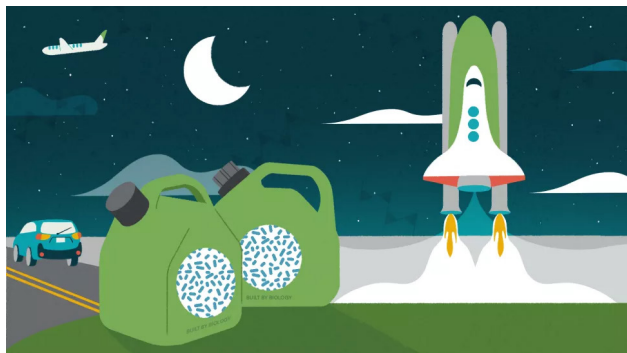
SPACE SUSTAINABILITY

Pg 91

POP-FAME

Why in news?

Scientists at the US Lawrence-Berkeley Lab have developed a fuel from a bacterium that packs more energy than even the rocket fuels in use today.



About

It is a newly developed biofuel— based on an antifungal molecule made by *Streptomyces* bacteria— could be used in future rocket launches.

While the project is very much in its early stages, researchers say the unique chemistry of the fuel candidate molecules show incredible promise in hefting future boosters into space.

The fuel candidate is also extremely energetic, potentially boosting rockets beyond their current capabilities. The key molecules are called POP-

FAMEs, short for “polycyclopropanated fatty acid methyl esters.”

This bacterial strain produces high potential combustion energy, and the unusual structure also allows for fuel molecules to compress into a relatively small volume,

POP-FAMEs are notably close in structure to an experimental petroleum-based rocket fuel, showing that these bacteria-produced molecules might be a feasible alternative. The experimental fuel, called Syntin, was developed in the Soviet Union in the 1960s. While Syntin was used in Soyuz rocket launches in the 1970s and 1980s, high costs, explosive potential and toxicity eventually led to the Soviet Union abandoning the fuel.

POP-FAME have higher energy densities, as compared to Syntin. Thus, even a small quantity of fuel can have considerable energy. Thus, it can be considered as an ideal rocket fuel. However, one challenge is to remove the two oxygen atoms with each molecule, in order to avoid weight in the rocket.

As per simulation data, POP-FAME fuel has energy density values more than 50 megajoules per litre, against 32 MJ for petrol and 35 MJ for RP-1, which is a rocket fuel based on kerosene.

PSLV ORBITAL EXPERIMENTAL MODULE (POEM)

Why in news?

The ISRO has launched three Singaporean satellites in precise orbit through the PSLV Orbital Experimental Module or ‘POEM’.

About

The PSLV Orbital Experimental Module is a platform that will help perform **in-orbit experiments** using the final, and otherwise discarded, stage of ISRO’s workhorse rocket, the Polar Satellite Launch Vehicle (PSLV).

The PSLV is a four-stage rocket where the first three spent stages fall back into the ocean, and the final stage (PS4) — after launching the satellite into orbit — ends up as space junk.

However, in PSLV-C53 mission, the spent final stage will be utilised as a “stabilised platform” to perform experiments.

POEM is carrying six payloads, including two from Indian space start-ups Digantara and Dhruva Space.

based experiments.

Power and Guidance for POEM -

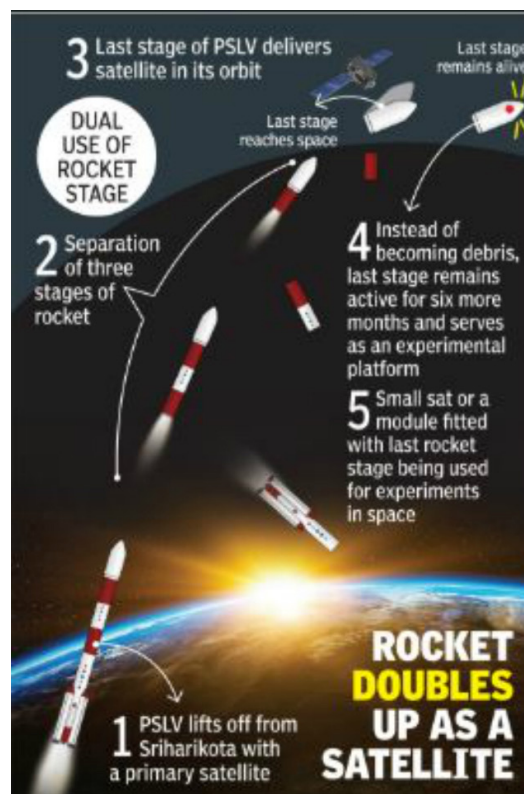
POEM has a dedicated Navigation Guidance and Control (NGC) system for attitude stabilisation, which stands for controlling the orientation of any aerospace vehicle within permitted limits. The NGC will act as the platform's brain to stabilize it with specified accuracy.

POEM will derive its power from solar panels mounted around the PS4 tank, and a Li-Ion battery. It will navigate using four sun sensors, a magnetometer, gyros & NavIC”.

“It carries dedicated control thrusters using Helium gas storage. It is enabled with a telecommand feature.

Earlier experiments

The Indian space agency first demonstrated the capability of using PS4 as an orbital platform in 2019 with the PSLV-C44 mission that injected Microsat-R and Kalamsat-V2 satellites into their designated orbits. The fourth stage in that mission was kept alive as an orbital platform for space-



Polar Satellite launch Vehicle

- Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages
- Some notable payloads launched by PSLV include India's first lunar probe Chandrayaan-1, India's first interplanetary mission, Mars Orbiter Mission (Mangalyaan) and India's first space observatory, Astrosat.
- The PSLV has four stages using solid and liquid propulsion systems alternately.
- As of July 1, 2022 the PSLV has made 55 launches, with 52 successfully reaching their planned orbits, two outright failures and one partial failure, yielding a success rate of 94% (or 95% including the partial failure). All launches have occurred from the Satish Dhawan Space Centre, known before 2002 as the Sriharikota Range (SHAR).

CLOFAZIMINE

Why in news?

Clofazimine is a key drug for the treatment of leprosy, that is in short supply in the Indian market for several months. The medicine is available in the government sector but shortages are felt in

the private sector

About -

Clofazimine is one of the three essential drugs in the **Multi Drug Treatment of Multibacillary Leprosy (MB-MDT)** cases, along with Rifampicin

and Dapsone.

Under the **NLEP (National Leprosy Eradication Programme)**, the government has been ensuring the steady supply of monthly blister packs for 12 months to all the multibacillary leprosy cases containing these three drugs.

Clofazimine has shown activity against *MultiDrug Resistance Tuberculosis* and has been *recommended by the WHO to treat drug resistance*.

National Leprosy Eradication Programme -

National Leprosy Control Programme (NLCP) was launched by the Govt. of India in 1954- 55. Multi Drug Therapy (MDT) came into wide use from 1982, and the National Leprosy Eradication Programme was introduced in 1983.

The programme was initially taken up in endemic districts and was extended to all districts in the country from 1993-94 with World Bank Assistant.

The strategy of NLEP was based on controlling the disease through reduction in the quantum of infection in the population and reduction in infective source, thus breaking the chain of disease transmission.

Four Research & Training Institutes were established directly under DGHS, namely Central Leprosy Training and Research Institute (CLTRI) Chengalpattu, Regional Leprosy Training and Research Institute (RLTRI) at Raipur, Gauripur and Aska. In addition, a Training Centre was established at Agra under ICMR. Remarkable progress has been achieved in reducing the disease burden in the country.

India achieved the goal set by the National Health Policy, 2002 of elimination of leprosy as a public health problem, defined as less than 1 case per 10,000 population, at the National level in December 2005.

Leprosy -

Hansen's disease (also known as leprosy) is an infection caused by slow-growing bacteria called *Mycobacterium leprae*.

It can affect the nerves, skin, eyes, and lining of the nose (nasal mucosa). With early diagnosis and treatment, the disease can be cured. People with Hansen's disease can continue to work and lead an active life during and after treatment.

Leprosy was once feared as a highly contagious and devastating disease, but now we know it doesn't spread easily and treatment is very effective. However, if left untreated, the nerve damage can



result in crippling of hands and feet, paralysis, and blindness.

According to the World Health Organization (WHO), leprosy is endemic in several States and Union Territories of India, with an annual case detection rate of 4.56 per 10,000 population.

The prevalence rate of leprosy is 0.4 per 10,000 population in the country

CERVAVAC

Why in news?

Cervavac, India's first quadrivalent human papillomavirus vaccine (gHPV), recently received a nod for market authorisation by the Drugs Controller General of India. Developed by the Serum Institute of India, it is intended to treat cervical cancer in women in an "affordable" and "accessible" manner.

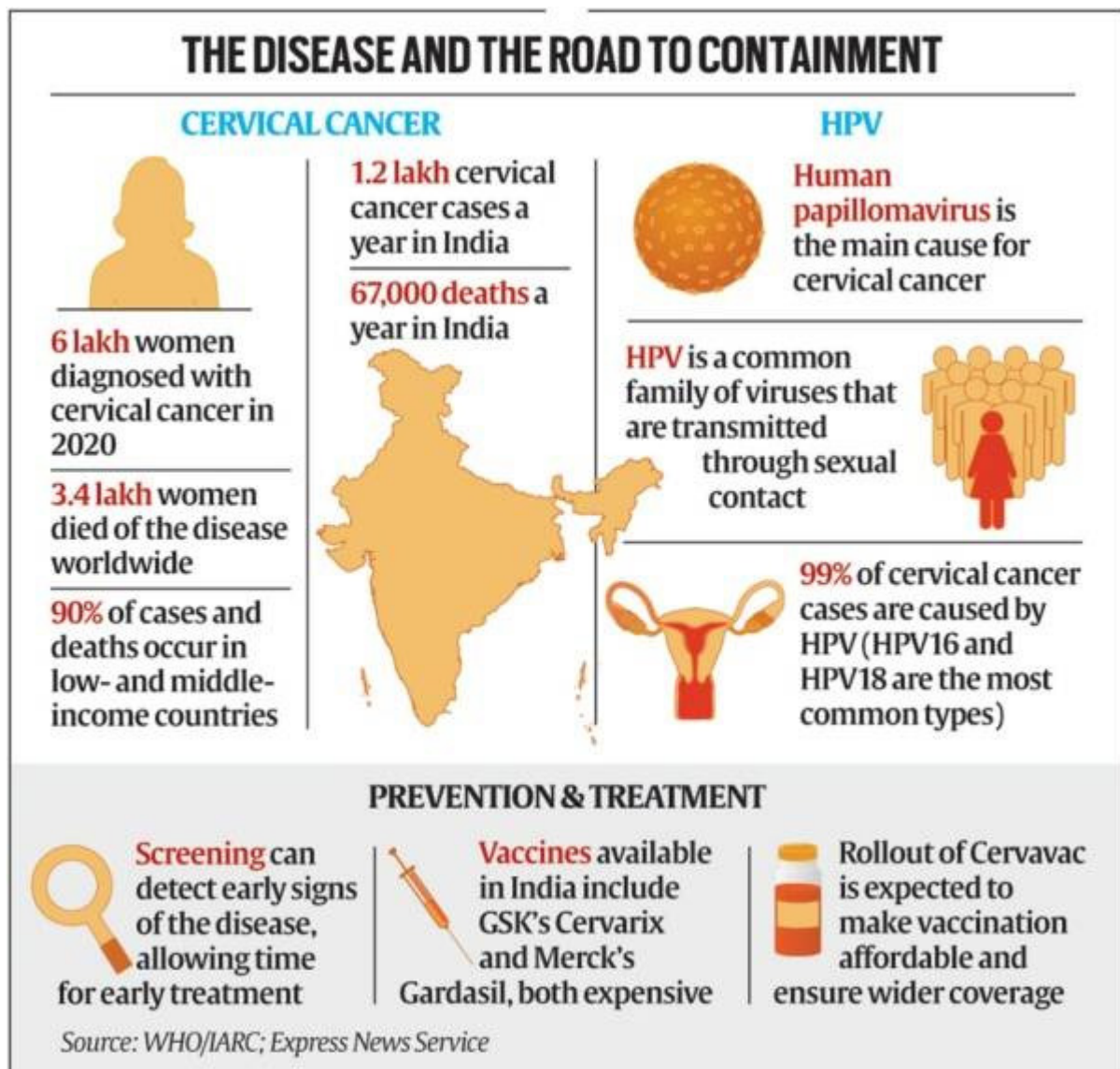
About -

Cervical cancer is a common sexually transmitted infection. Long-lasting infection

with certain types of HPV is the main cause of cervical cancer.

When cancer starts in the cervix, it is called cervical cancer. The cervix connects the vagina (birth canal) to the upper part of the uterus. The uterus (or womb) is where a baby grows when a woman is pregnant.

All women are at risk for cervical cancer. It occurs most often in women over age 30. Long-lasting infection with certain types of human papillomavirus (HPV) is the main cause of cervical



cancer. HPV is a common virus that is passed from one person to another during sex. At least half of sexually active people will have HPV at some point in their lives, but few women will get cervical cancer.

In addition, having multiple sexual partners, poor hygiene, smoking are other factors that increase the risk of developing cervical cancer.

Screening tests and the HPV vaccine can help prevent cervical cancer. When cervical cancer is found early, it is highly treatable and associated with long survival and good quality of life.

Worldwide, cervical cancer is the second most common cancer type and the second most common cause of cancer death in women of reproductive age (15–44).

India accounts for about a fifth of the global burden, with 1.23 lakh cases and around 67,000 deaths per year according to the World Health Organization's International Agency for Research on Cancer (IARC-WHO).

Global Strategy to Eliminate Cervical Cancer

In May 2018, the WHO Director-General

announced a global call for action to eliminate cervical cancer, underscoring renewed political will to make elimination a reality and calling for all stakeholders to unite behind this common goal.

In August 2020 the World Health Assembly adopted the Global Strategy for cervical cancer elimination.

Human papillomavirus (HPV)

Human papillomavirus (HPV) is a small, non-enveloped deoxyribonucleic acid (DNA) virus that infects skin or mucosal cells. The circular, double-stranded viral genome is approximately 8-kb in length.

The new vaccine

The vaccine is based on VLP (virus like particles), similar to the hepatitis B vaccine, and provides protection by generating antibodies against the HPV virus's L1 protein.

The vaccine must be given to children starting at about age 12 to 16 years. It can be taken up to 26 years but then a third dose is needed and the vaccine is not as effective because the exposure might already have happened.

LUMPY SKIN DISEASE

Why in news?

Lumpy skin disease kills over 1,200 cattle in Gujarat; govt intensifies vaccination

The affected districts include Kutch, Jamnagar, Devbhumi Dwarka, Rajkot, Porbandar, Morbi, Surendranagar, Amreli, Bhavnagar, Botad, Junagadh

About-

Lumpy skin disease is a viral infection that is spread by mosquitoes, flies, lice, wasps, etc., or by direct contact, with contaminated food and water.

Lumpy skin disease (LSD) is an infectious disease in cattle caused by a virus of the family **Poxviridae**, also known as **Neethling virus**.

The main symptoms are general fever in animals, discharge from the eyes and nose,



excess salivation, soft blisters like nodules on the body, reduced milk production, and difficulty in eating, enlarged superficial lymph nodes and

multiple nodules (measuring 2–5 centimetres (1–2 in) in diameter) on the skin and mucous membranes (including those of the respiratory and gastrointestinal tracts). Infected cattle also may develop edematous swelling in their limbs and exhibit lameness.

The virus has important economic implications since affected animals tend to have permanent damage to their skin, lowering the commercial value of their hide. Additionally, the disease often results in chronic debility, reduced milk production, poor growth, infertility, abortion, and sometimes death.

The virus can be transmitted through blood, nasal discharge, lacrimal secretions, semen and saliva. The disease can also be transmitted through infected milk to suckling calves. In experimentally infected cattle, The virus is not found in urine or stool. Like other pox viruses, which are known to be highly resistant, LSDV can remain viable in infected tissue for more than 120 days.

Vaccination-

There have been two different approaches to

immunization against LSDV.

In South Africa, the Neethling strain of the virus was first attenuated by 20 passages on the chorio-allantoic membranes of hens' eggs. Now the vaccine virus is propagated in cell culture.

In Kenya, the vaccine produced from sheep or goatpox viruses has been shown to provide immunity in cattle. However, the level of attenuation required for safe use in sheep and goats is not sufficient for cattle. For this reason the sheeppox and goatpox vaccines are restricted to countries where sheeppox or goatpox is already endemic since the live vaccines could provide a source of infection for the susceptible sheep and goat populations.

In India, As of now, several states have authorised the use of goat pox vaccine for treating LSD as the virus is antigenically similar to sheep and goat pox.



FIBERISATION

Why in news?

India is preparing to auction off about 72 Ghz of airwaves to rollout 5G services in the country. However, the infrastructure needed for such a rollout requires existing radio towers to be connected via optical-fibre cables.

About -

The process of **connecting radio towers with each other via optical fibre cables** is called fiberisation.

It helps provide full utilisation of network capacity, and carry large amounts of data once 5G services are rolled out. It will also aid in providing additional bandwidth and stronger backhaul support.

The backhaul is a component of the larger transport that is responsible for carrying data across the network. It represents the part of the network that connects the core of the network to the edge.

To transition into 5G, India needs at least 16 times more fibre, according to estimates by STL, a technology company specialised in optical fibers and cables.

In India, currently only 33% of the towers are fiberised, compared to the 65%-70% in South Korea and 80%-90% in the U.S., Japan and China, according to a 2021 report by India Infrastructure Research.

The fibre kilometer (fkm) per capita in India is lower than other key markets.

Ideally, a country needs 1.3 km of fibre per capita to ensure good fiberisation. India's fkm is just .09 compared to 1.35 in Japan, 1.34 in the U.S. and 1.3 in China, the report noted.

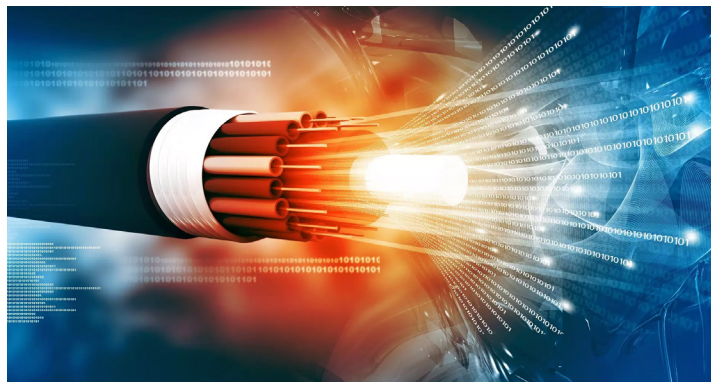
Challenges for fiberisation -

Lack of Larger investments

Right of Way rules - aim to incorporate nominal one-time compensation and uniform procedure for establishment of Overground

Telegraph Line (OTL) anywhere in the country. While all States/UTs are required to implement these rules, they are not in complete alignment and still require certain amendments to align]

Demand: Government programmes like BharatNet and Smart Cities adds to the demand of fibre deployment, necessitating a complete tower fiberisation. India laid out the vision in 2020 to



connect every village in the country with optical fiber cable (OFC) in 1,000 days. To achieve that vision, cables must be laid at a speed of 1,251 km a day, around 3.6 times the current average speed of 350 km a day.

TIANGONG SPACE STATION

Why in news?

China on Sunday launched the second of three modules to its permanent space station, in one of the final missions needed to complete the orbiting outpost by year's end.

About -

The Tiangong space station is a Chinese space station being built in low Earth orbit between 340 and 450 kilometers above the earth.

It is part of China Manned Space Program and is the country's first long-term space station.

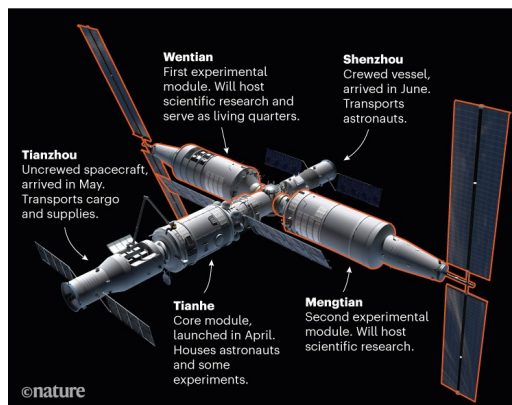
China is going to operationalize its new Tiangong multi-module space station for at least ten years.

China launched an unmanned module named "Tianhe", or "Harmony of the Heavens" for its

CHINA'S FIRST SPACE STATION

China aims to finish construction of Tiangong in late 2022. The station will be used to test technologies for human space exploration and as a laboratory for scientific experiments.

□ Set to launch in 2022



permanent space station in 2021 that it plans to complete by the end of 2022.

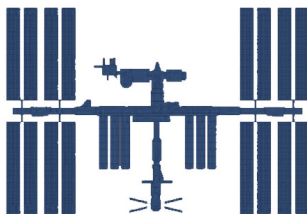
Tianhe core module is the first module to launch the Tiangong space station module.

The Wentian lab module, 17.9 metres (59 feet) long, will be where astronauts can carry out

three astronauts.

Mengtian is expected to be launched in October and, like Wentian, is to dock with Tianhe, forming a T-shaped structure.

Comparing space stations



International Space Station



China Space Station



Mir Space Station

Status	In-service	In construction (Expected to be completed around 2022)	Retired
In-orbit mass (tonnes)	419.7	66	129.7
Orbital height (kilometers)	About 400	340-450	402
Habitable volume (cubic meters)	388	110	351
Lifespan	>23 years	>10 years	15 years
Crew size	6 normally 9 short-term	3 normally 6 short-term	3 normally 6 short-term

Source: NASA, China Manned Space, China Academy of Space Technology

CGTN

scientific experiments, along with the other lab module yet to be launched – Mengtian (“Dreaming of the Heavens”).

Wentian features an airlock cabin that is to be the main exit-entry point for extravehicular activities when the station is completed.

It will also serve as short-term living quarters for astronauts during crew rotations on the station, designed for long-term accommodation of just

ANTHRAX

Why in News?

Kerala health officials confirmed the presence of anthrax, a serious infectious disease caused

and *gastrointestinal* (stomach and intestine).

How do animals get Anthrax?

Live Stock	Humans
<ul style="list-style-type: none"> In livestock species, like cattle, sheep or goats, the first sign is usually the sudden death of one or two animals within the herd. Prior to their death, they might show signs of high fever. In wildlife, sudden death is also a usual indicator, often accompanied by bloody discharge from natural orifices (mouth, nose, ear, anus), bloating, incomplete rigour mortis and the absence of clotting of the blood, according to WHO. 	<ul style="list-style-type: none"> In humans, cutaneous anthrax symptoms can include groups of small blisters that may itch, painless skin sores with a black centre, with the possibility of swelling around them. This is the most common route of the disease and is seldom fatal. Inhalation anthrax includes fever and chills, shortness of breath, coughing and nausea to name a few. It's the deadliest form of the disease and can lead to death within 2-3 days. Gastrointestinal anthrax symptoms can include nausea and vomiting (with blood), swelling of the neck, stomach pain and diarrhoea.

by spore-forming bacteria, in Athirappilly of Thrissur district.

About Anthrax

Anthrax, also known as malignant pustule or woolsorter's disease, is a rare but serious disease caused by the rod-shaped bacteria known as **Bacillus anthracis**.

It occurs naturally in soil and, according to the WHO it is primarily a disease of herbivores, with both domestic and wild animals being affected by it.

Anthrax is a **zoonotic disease**, meaning that it is naturally transmissible from animals (usually vertebrae) to humans. People can get the disease through contact with infected animals or animal products that are contaminated with bacteria.

According to the WHO, Anthrax is generally regarded as **non-contagious**. There have been instances of person-to-person transmission, however, such instances are extremely rare.

There are three forms of anthrax infection: cutaneous (skin), inhalation (lungs)

Host animals shed the bacteria into the ground, which sporulates when exposed to the air. These spores, which can persist in the soil for decades, wait to be taken up by another host, subsequently germinating and multiplying, leading to its spread.

Herbivorous animals can get the disease through contaminated soil and feed, while omnivorous and carnivorous animals get infected through contaminated meat, bones and other feeds. Wild animals get sick through feeding on anthrax-infected carcasses.

How do humans get infected?

Humans almost always contract the disease directly or indirectly from animals or animal products.

People get infected with anthrax when spores enter the body, through breathing, eating contaminated food or drinking contaminated water, or through cuts or scrapes in the skin. The spores then get "activated" and multiply, spreading across the body, producing toxins and

causing severe illness.

Humans can acquire the disease by handling carcasses, bones, wool, hides or other products from infected animals.

People that are most at risk of contracting the disease are people that work with animals, such as farmers, veterinarians, livestock handlers, wool sorters and laboratory professionals.

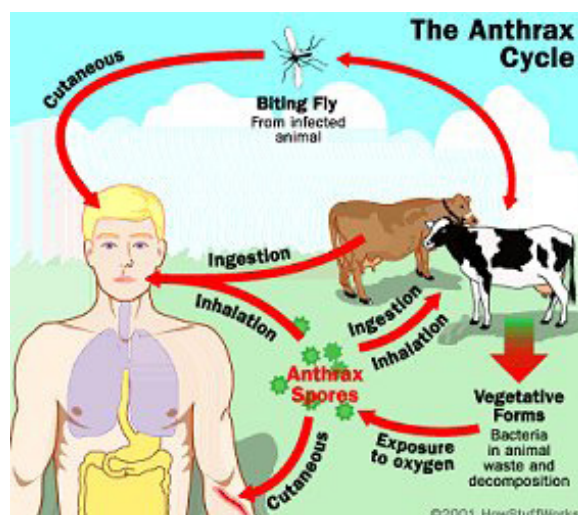
Ssymptoms of Anthrax

How can it be treated?

Antibiotic therapy that is administered early in the course of the infection has been proven to be responsive.

Penicillin has long been the antibiotic of choice and in recent years, **ciprofloxacin** and **doxycycline** have also been used as alternatives.

Vaccination of livestock so that the disease cannot spread.



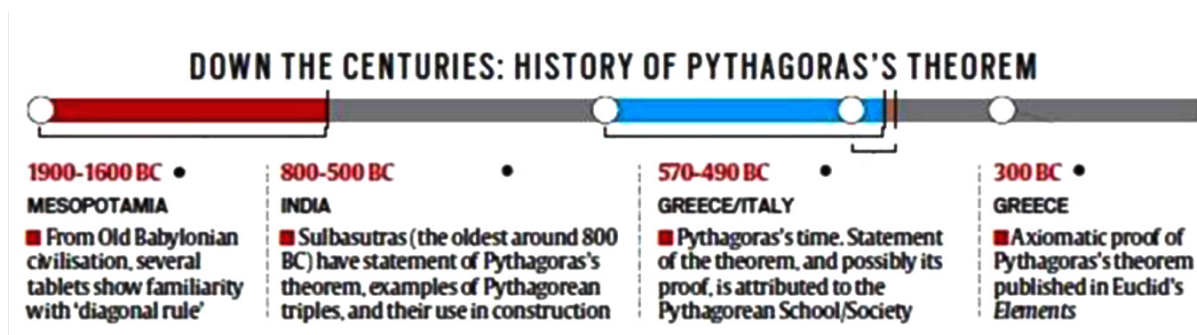
There are also vaccines for humans, but their availability is usually restricted to at-risk individuals, such as lab workers and people who handle animals.

PYTHAGOREAN GEOMETRY IN VEDIC-ERA

Why in News?

The position paper, part of Karnataka's submissions to the NCERT for a National Curriculum Framework, has revived discussion on

triangle (one in which one of the angles is 90°). If any two sides of a right triangle are known, the theorem allows you to calculate the third side.



what we call the Pythagoras theorem was already known to Indians from the Vedic times.

About

The Pythagoras theorem describes the relationship connecting the three sides of a right

$$a^2 + b^2 = c^2$$

Did Vedic Indian Mathematicians know this?

There are references of Pythagoras in the Sulbasutras, which are texts pertaining to fire

rituals (yajanas) performed by Vedic Indians. The oldest of these is the Baudhayana Sulbasutra.

The period of Baudhayana Sulbasutra is uncertain. It is estimated based on linguistic and other secondary historical considerations. In recent literature, Baudhayana Sulbasutra is taken to be from around 800 BCE.

Baudhayana Sulbasutra contains a statement of what is called Pythagoras theorem (it was known rather as a geometric fact, and not as a 'theorem'). The yajna rituals involved construction of **altars (vedi) and fireplaces (agni) in a variety of shapes such as isosceles triangles, symmetric trapezia, and rectangles**. The sulbasutras describe

steps towards construction of these figures with prescribed sizes.

How did the Knowledge of Equation Evolve?

The earliest evidence is from the **Old Babylonian civilisation** (1600-1900 BCE). They referred to it as the **Diagonal Rule**.

The earliest evidence of a proof comes from a **period after the sulbasutras**.

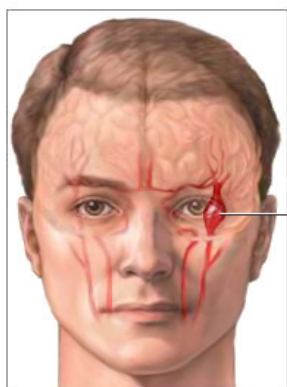
The oldest surviving axiomatic proof of the theorem is in the **Elements of Euclid** from around 300 BCE.

ANEURYSM

Why in News?

Actor Emilia Clarke has revealed her struggle with a brain aneurysm.

About



An aneurysm can occur in any blood vessel which supplies the brain

Aneurysm

It is a **swelling of the arteries and veins** in any part of the body, and is caused by weakening of the walls. It occurs most commonly in the aorta, back of the knees, brain or intestines. If the aneurysm gets ruptured, it can even cause internal bleeding and stroke.

Blood vessels of the brain and the heart are the most common locations to get seriously affected.

The swelling can be of two types. Either the complete blood vessel is swollen or a specific side

of the blood vessel can bulge out from the sides.

Causes

Potential risk factors for aneurysm include smoking, age, high cholesterol, obesity, hypertension or tissue disorders.

Pregnancy can also increase risk of aneurysm of the spleen.

Treatment innovation

A device called **flow diversion stent** is a new innovative intervention for treatment of aneurysm for the initial stages, when it has not ruptured. A **cylindrical, metallic mesh stent** is placed inside the sac of the parent blood vessel to divert the blood flow from the aneurysm.

The diversion is aimed at **preventing rupture**. Flow diversion can be used to treat large or giant wide-necked brain aneurysms.

Risk reduction

Most cases being congenital, it is not always possible to prevent aneurysm, but certain lifestyle changes can help reduce risk.

These include quitting smoking; maintaining a healthy blood pressure by sticking to a balanced diet; maintaining a healthy body weight; and avoiding a high cholesterol diet.

BIOLUMINESCENCE

Why in News?

NCCR study explains reason for bioluminescence in city beaches

About bioluminescence

Bioluminescence is light produced by a chemical reaction within a living organism. Bioluminescence is a type of chemiluminescence, which is simply the term for a chemical reaction where light is produced. (Bioluminescence is chemiluminescence that takes place inside a living organism.)

Bioluminescence is a “cold light.” Cold light means less than 20% of the light generates thermal radiation, or heat.

Most bioluminescent organisms are found in the ocean. These bioluminescent marine species include fish, bacteria, and jellies. Some bioluminescent organisms, including fireflies and fungi, are found on land. **There is almost no bioluminescent organism's native to freshwater habitats.**

The chemical reaction that results in bioluminescence requires two unique chemicals: **luciferin** and either **luciferase** or **photoprotein**. Luciferin is the compound that actually produces light.

Report findings

Adequate nutrients brought on by substantial rain and a high abundance of the plankton, called diatom *Thalassiosira* sp., triggered the (bioluminescent) bloom of *Noctiluca scintillans*

The plankton is in the ocean. With the nutrition available, it will multiply, and becomes the bloom.

Low wind speed, lowering of atmospheric temperature, high rain and low sea surface temperature are cited as the probable environmental cues

Local hydrodynamics and the diverging currents governed the presence and dispersion of the sudden outbreak of the *Noctiluca scintillans* bloom in the region.

TIHAN

India's first Autonomous Navigation facility, TiHAN was inaugurated by Jitendra Singh, Union Minister of State for Science & Technology at the IIT Hyderabad .

Developed at a budget of Rs. 130 crores by the Union Ministry of Science & Technology, TiHAN (Technology Innovation Hub on Autonomous Navigation) is a multidisciplinary initiative that will make India a global player in the futuristic and next generation 'smart mobility' technology.

The minister said that the vision of TiHAN-

IITH is to become a global player for next generation smart mobility technologies and the Ministry of Science & Technology has come forward to support this initiative, which will be a trendsetter for others as well.

“Limited testbeds or proving grounds exist worldwide to investigate the operation of unmanned and connected vehicles in a controlled environment by simulating various scenarios that may occur in real-life traffic operations, ranging from frequently occurring to extreme cases.

About NCCR

- NCCR is envisaged to develop and improve the country's capabilities in addressing the challenging problems prevailing in the coastal zone, which have societal, economic and environmental implications.
- “National Centre for Coastal Research (NCCR)” an attached office of Ministry of Earth Sciences.

In India, there is presently no such testbed facility for assessing autonomous vehicle performance, and hence the need for this TiHAN Testbed.

Technology Innovation Hub on Autonomous Navigation Foundation (TiHAN)-IITH has already taken many forward-looking initiatives to promote innovation in the mobility sector.

“TiHAN Testbed will provide a unique platform for high quality research between academia, industry and R&D labs both at the

national and international level, thus making India a global leader in autonomous navigation technologies.

India's mobility sector is one of the world's largest markets and the TiHAN - IITH will be the source of futuristic technology generation for autonomous vehicles.

TiHAN is developing and deploying a real-time CPS system utilising autonomous UAVs and ground/surface vehicles for many application sectors of the national importance of this decade.

MARBURG VIRUS

Ghana announced the country's first outbreak of Marburg virus disease after two people who were not related died June 27 and 28.

Word of a new outbreak of a lethal disease caused by viral infections added to the concerns of a public weary from battling the coronavirus pandemic and recently alarmed by the spread of monkeypox and a new case of polio.

Doctors and public health experts in the country immediately started searching for anyone who had been exposed and investigating the cause of the spread in an effort to contain infection.

For now, health researchers in Ghana and in other parts of the world said that there was no indication that the virus had spread further.

What is Marburg virus disease?

Marburg was first detected in 1967, when outbreaks of hemorrhagic fever occurred simultaneously in laboratories in Marburg and Frankfurt in Germany, and in Belgrade, in what is now Serbia — in cases that were linked to African green monkeys imported from Uganda.

Other cases have since been found in Angola, Congo, Kenya, South Africa and Uganda, according to the World Health Organization. Last month's cases in Ghana were the first recorded in that country.

The Marburg virus is the pathogen that causes Marburg virus disease in humans.

There are no vaccines or antiviral treatments

for the disease, medical experts said, but hydrating patients and treating their specific symptoms can improve their chances of survival.

The disease is clinically similar to Ebola in its spread, symptoms and progression, although it is caused by a different virus, according to WHO. In Marburg's case, fruit bats are considered to be the hosts of the virus, although researchers say it does not cause them illness.

Researchers believe that Ebola is likely carried by bats or by nonhuman primates, according to the Centers for Disease Control and Prevention. Even though it has not spread widely, Marburg has been deadly, with case fatality rates ranging from 24% to 88%, depending on which strain people contract and the management of cases, according to WHO.

Ebola case fatality rates are nearly the same.

Marburg virus can spread through direct contact with blood, secretions or other bodily fluids from infected people, according to WHO.

It can also spread through contact with contaminated surfaces and materials like bedding or clothing.

NEW PATHWAY TO REGULATE NITRATE ABSORPTION IN PLANTS

Researchers led by those from the National Centre of Biological Sciences, Tata Institute of Fundamental Research, Bengaluru (NCBS-TIFR), have found a new pathway that regulates nitrate absorption in plants. The researchers studied this mechanism in both rice (monocot) and tobacco (dicot) plants.

Role of Nitrogen in plant growth

Nitrogen is one of the most important macronutrients needed for development of a plant. It is a part of chlorophyll, amino acids and nucleic acids, among others. 0063hgvxcz

It is mostly sourced from the soil where it is mainly absorbed in the form of nitrates and ammonium by the roots.

Nitrates also play a role in controlling genome-wide gene expression that in turn regulates root system architecture, flowering time, leaf development, etc.

Thus, while a lot of action takes place in the roots to absorb and convert nitrogen into useful nitrates, the absorbed nitrates in turn regulate plant development apart from being useful as a macronutrient.

About the new method

The researchers investigated a miR444 target gene called MADS27, a transcription factor that has previously received little attention.

Transcription factors are proteins involved in the process of converting, or transcribing, DNA into RNA. Transcription factors include a wide number of proteins, excluding RNA polymerase, that initiate and regulate the transcription of genes.

The micro-RNA, miR444, activates the Gene MADS27, which regulates nitrate absorption, root development, and stress tolerance, and thus provides a way to control these plant properties.

Three-Pronged Effect

This transcription factor has a three-pronged effect on the plant.

First, it regulates nitrate absorption by switching “on” proteins involved in this process. Second, it leads to better development of the roots by regulating auxin hormone production and transport. Finally, and somewhat surprisingly to the researchers, it helps in the abiotic stress tolerance by keeping the main stress player proteins “on.”

This is a new finding with a three-pronged effect and it provides an alternate means of regulating and optimising nitrate absorption.

The gene MADS27 appears to be an excellent candidate for modification in order to improve nitrogen use efficiency, which helps the plant absorb more nitrates, and to engineer abiotic stress tolerance.

This mechanism was studied in both rice (monocot) and tobacco (dicot) plants by the researchers. The study was published in the Journal of Experimental Botany.

Nitrate overuse

The presence of nitrates is important for the plant development and also for grain production. However, the overuse of nitrates in fertilizers, for instance, can lead to the dumping of nitrates in the soil which leads to accumulation of nitrates in water and soil. This accumulation adds to soil and water pollution and increased contribution to greenhouse gases.

To avoid this, there should be optimal use of nitrates. Also, since the whole process of nitrate absorption takes place in the roots, a well-developed root system is needed for this to take place optimally.

At one level, it is known that the hormone auxin is responsible for well-developed roots across all plants. A number of genes are known to help with auxin production, improved nitrate transport and assimilation in plants.

SPACE SUSTAINABILITY

Why in News?

Recently ,U.K .hosted the fourth summit for Space Sustainability in London in collaboration with the Secure World Foundation. In line with the ambitious U.K .National Space Strategy, George Freeman ,the Minister of Science ,announced a new 'Plan for Space Sustainability'.

About

'Plan for Space Sustainability'

To set a global commercial framework for the insurability, licensing and regulation of commercial satellites.

To reduce the cost for those who comply with the best sustainability standards and thus encourage a thriving ecosystem for the industry.

The plan also hopes to drive the sustainability factor internationally and provide an opportunity for the private sector to develop models that enhance operations 'safety and reduce debris footprint.

What is space sustainability ?

Space sustainability seeks to use the environment of space to meet the current needs of society without compromising the needs of future generations.

It usually focuses on

space closest to Earth ,**Low Earth Orbit**) LEO ,(since this environment is the one most used and therefore most relevant to humans .It also considers Geostationary Equatorial Orbit) GEO (as this orbit is another popular choice for Earth-orbiting mission designs.

Space sustainability requires all space participants to have **three consensuses**. The space field should be used peacefully ,jointly protect the space field from harm ,and maximise space utilisation through environmental, economic ,and security exploration of space.

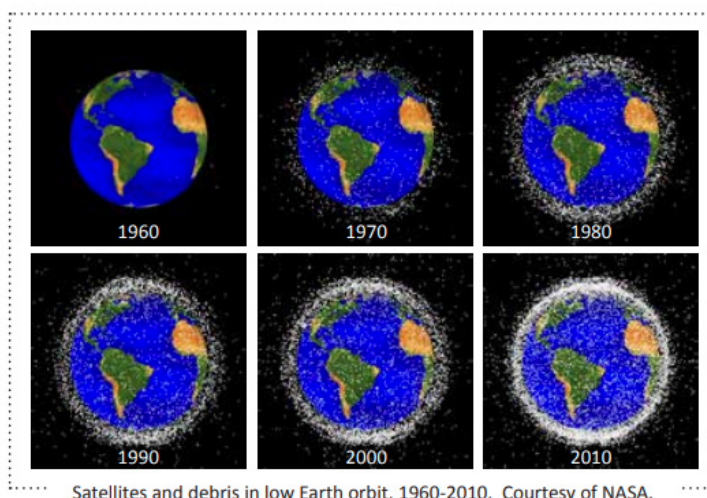
These consensuses also clarify the relationship between space sustainability and international security ,that states and individuals explore space for various purposes.

Importance of the space sustainability

The beneficial uses of outer space ,includes

1. S t r e n g t h e n i n g communications infrastructures
2. disaster management
3. education
4. agriculture
5. environmental protection
6. natural resource management

If outer space is not safe, secure ,and peaceful ,the ability to use it could be denied to all .We would be unable to use the space environment for national security purposes ,Earth observation, telecommunications) including financial transactions ,internet,



Satellites and debris in low Earth orbit, 1960-2010. Courtesy of NASA.

telephone ,data transfer,



and television , (navigation, scientific exploration , or economic development . Indeed, human spaceflight in Earth orbit could come to an end

Addressing the need for space sustainability now means we can prevent negative trends from becoming norms , and ensure that outer space can be used by all countries , not just technologically sophisticated ones.

Challenges In Achieving Space Sustainability

Orbital crowding poses a big threat to space sustainability . This poses a

direct threat to the operations and safety of a mission and is likely to cause legal and insurance-related conflicts.

Space debris : After the completion of a mission , an 'end-of-life protocol ' requires space objects to be moved to the graveyard orbit or to a low altitude . Neither of the options is sustainable in the long run.

Solar and magnetic storms : These storms can potentially damage communication systems . Such space weather threats need to be addressed along with the efforts to identify the terrestrial carbon footprint of outer space missions.

Militarization of outer space - Development of weapons that can attack space systems in orbit) i.e. anti-satellite weapons , (attack targets on the earth from space or disable missiles travelling through space.

The expansion of **private sector space activities** poses new challenges to maintaining a safe operational environment in space , while offering opportunities to expand access to the benefits of space applications on Earth.

Global Efforts For Space Sustainability

Between 2008 and 2020 three multilateral initiatives

were created to address space sustainability and security challenges .They include

an initiative by the European Union to create a ”**Draft International Code of Conduct on Outer Space**

Activities “for consideration by the world community,

a UNGA Group of Governmental Experts) GGE(on possible **transparency and confidence-building measures**)TCBMs (for space ,and

the establishment of a Working Group on the **Long-Term Sustainability) LTS** (of Outer Space Activities by the United Nations Committee on the Peaceful Uses of Outer Space) UN COPUOS.(

INTERNATIONAL SPACE TREATIES

The treaties commonly referred to as the” five United Nations treaties on outer space “are:

- The” **Outer Space Treaty** - 1967 “A basic framework for international space law
- The” **Rescue Agreement** - 1968 “Agreement on the Rescue of Astronauts ,the Return of Astronauts and the Return of Objects Launched into Outer Space
- The” **Liability Convention** - 1972 “Convention on International Liability for Damage Caused by Space Objects
- The” **Registration Convention** - 1976 “Convention on Registration of Objects Launched into Outer Space
- The” **Moon Agreement** - 1984 “Agreement Governing the Activities of States on the Moon and Other Celestial Bodies

UN COPUOS

The Committee on the Peaceful Uses of Outer Space) COPUOS (was set up by the General Assembly in 1959 to govern the exploration and use of space for the benefit of all humanity :for peace ,security and development.

The Committee was tasked with reviewing international cooperation in peaceful uses of outer space ,studying space-related activities that could be undertaken by the United Nations, encouraging space research programmes ,and studying legal problems arising from the exploration of outer space.

The Committee was instrumental in the creation of the five treaties and five principles of outer space.

The UN Office for Outer Space Affairs) UNOOSA (is the secretariat for COPUOS and is part of the larger UN secretariat .The Office implements the UN Programme on Space Applications and a number of other activities in the legal ,scientific ,technical ,and political aspects of space activities.

The **Conference on Disarmament) CD** ,(which is not a UN organization but works under the UN auspices ,is the international forum for work on disarmament ,and for matters related to weapons in space and other space security issues

India's Position In Space Sustainability

India has always emphasised cost-effective and efficient missions with problem-solving applications. For example, India's debris footprint is minuscule; India has 114 debris among the 25,182 pieces, of sizes larger than 10 cm, in the lower earth orbits. Apart from that, the recent activities of India on space sustainability are,

Project NETRA :The Indian Space Research Organisation) ISRO (has initiated' Project NETRA 'to monitor space debris.

Earlier this year, **India and the U.S. signed a new pact** for monitoring space objects at the 2+2 dialogue.

Increased private participation :With Indian

National Space Promotion and Authorisation Centre)In-SPACe ,(India expects an increased role of the private sector in India's space activities, and

SPADEx :ISRO is developing a docking experiment to provide in-orbit servicing named SPADEx)Space Docking Experiment.(It looks at docking a satellite on an existing satellite, offering support in re-fuelling and other in-orbit services while enhancing the capability of a satellite. Hence, the SPADEx can increase the longevity of a mission and also provide a futuristic option to combine missions/experiments.

Way Forward

A collective effort by all space players, with the active

role of the **UN COPUOS or the United Nations Office for Outer Space Affairs)UNOOSA** ,(is needed to set equitable standards for the ease of activities.

Many of the measures for sustainability are resource-consuming and expensive for medium-and-small space programs. Hence, there is a need for addressing the principles and rules that guide the activities in outer space with better clarity.

Encourage the private sector with a set of sustainability guidelines to ensure optimum utilisation of resources and increase the safety and productivity of missions



SECURITY

What's Inside?

1. SCOMET LIST
2. AUTONOMOUS FLYING WING TECHNOLOGY DEMONSTRATOR
3. Y-3023 DUNAGIRI
4. INS SINDHUDHWAJ
5. MULTI-AGENCY MARITIME SECURITY GROUP (MAMSG)
6. NAMSAI DECLARATION

SCOMET LIST

Why in News?

India's defence exports for 2021-22 were estimated at 13,000 crore, the highest ever.

About

India's defence exports for 2021-22 were estimated at 13,000 crore, the highest ever, Sanjay Jaju, Additional Secretary (Defence Production) in the Defence Ministry.

Major buyers – US, Southeast Asia, West Asia and Africa.

The private sector accounted for 70% of the exports, while public sector firms accounted for the rest

While India's defence imports from the U.S. have gone up significantly in recent years, Indian companies have been increasingly becoming part of the supply chains of U.S. defence companies.

Only components which needed defence authorisation (listed under the SCOMET 6 category) were accounted for calculating defence exports.

What is SCOMET list?

SCOMET item is an acronym for Special

Chemicals, Organisms, Materials, Equipment, and Technologies and these are dual-use items that can be used for both civilian and military applications.

India's Foreign Trade Policy regulates the export of items in the SCOMET list. The exporter needs to obtain a license from the Directorate General of Foreign Trade, Ministry of Commerce to export SCOMET.

SCOMET Items Categories

The eight categories of SCOMET items are as follows:

Category 0: Nuclear material, equipment, technology and nuclear-related other materials

Category 1: Toxic chemical agent and other chemicals.

Category 2: Micro-organism and toxin.

Category 3: Material, Materials Processing Equipments, and other material related technologies.

Category 4: Nuclear-related equipment, test and production types of equipment; assemblies and components of nuclear; and related technology,



not controlled under Category 0.

Category 5: Aerospace system, equipment including productions and test types of equipment, related technology and specially designed component and accessories.

Category 6: Munitions List

Category 7: Computers, electronic, and information technology including information security.

Category 8: Special Materials and Related Types of equipment, Electronics, Computers, Material Processing, Information Security, Sensors, Telecommunications and Lasers, Avionics, Marine,

Aerospace Navigation and Propulsion.

Licensing Authority

Directorate General of Foreign Trade issues licenses for the export of items specified in Categories 1, 2, 3, 4, 5, 7 and 8 of the SCOMET list.

Licensing authority for items in Category 0 is Department of Atomic Energy

Department of Defence Production, the Ministry of Defence is the prescribed authority for the export of items specified in the Category 6 of the SCOMET list.

AUTONOMOUS FLYING WING TECHNOLOGY DEMONSTRATOR

Why in News?

Maiden flight of the Autonomous Flying Wing Technology Demonstrator was carried out successfully by DRDO from the Aeronautical Test Range, Chitradurga, Karnataka.

About

This flight marks a major milestone in terms of proving critical technologies towards the development of future unmanned aircraft

A significant step towards self-reliance in such strategic defence technologies

It is a major achievement towards autonomous aircraft and will pave the way for 'Aatmanirbhar Bharat' in terms of critical military systems.

The Unmanned Aerial Vehicle is designed & developed by Aeronautical Development Establishment (ADE), Bengaluru, a premier research laboratory of DRDO.

It is powered by a small turbofan engine. The airframe, undercarriage and entire flight control and avionics systems used for the aircraft were developed indigenously.

Specialty

The flying wing structure of the technology demonstrator, which refers to a tailless fixed-wing aircraft which houses its payload and fuel in its main wings and does not have a defined fuselage-like structure found in the conventional aircraft.

The flying wing type of aircraft has a key operational advantage because it has low reflective cross sections resulting in low radar signature, making it a stealth machine. Because of the shape, the aircraft also has very low drag or air resistance

Drone and Anti drone technologies by DRDO



The DRDO has in the past developed various drones, like **Nishant, Rustom, Tapas and Lakshya** among others, which have different capabilities and operational roles.

In July last year, the DRDO also unveiled its **anti-drone technology** aimed at neutralizing

enemy attacks. The system has the capability of counter attacks, including detection, soft kill — for jamming the communication links of drone) and hard kill — and laser based hard kill to destroy the drone to neutralize the adversary drones.

Y-3023 DUNAGIRI

Why in News?

Defence minister Rajnath Singh launches Y-3023 Dunagiri, Project 17A frigate

About

Union Defence Minister Rajnath Singh on Friday launched Y-3023 Dunagiri, Project 17A frigate built by Garden Reach Shipbuilders Limited (GRSE) in Kolkata.

P17A Frigates are a follow-on class of the P17 (Shivalik Class) Frigates with improved stealth features, advanced weapons and sensors and platform management systems.

Seven P17A Frigates are under various stages of construction at Mazagaon Dock Ltd (MDL) and Garden Reach Shipbuilders and Engineers (GRSE).

About Dunagiri

Dunagiri' is the fourth ship of Project 17A Frigates. It is named after a mountain range in the state of Uttarakhand. The first three ships under Project 17A were:

INS Nilgiri

INS Himgiri

INS Udaygiri

'Dunagiri' is the reincarnation of the erstwhile 'Dunagiri', the Leander Class ASW Frigate, which in her 33 years of service had witnessed various challenging operations and multinational exercises.

Features

The main advanced stealth features of P-17A pertain to the smaller Radar cross-section of the ship achieved through the use of a special



super structure shape which reduces radar wave reflections.

The P17A frigates incorporate new design concepts for **improved survivability, sea keeping, stealth and ship manoeuvrability.**

Another important feature is regarding the ship's **low acoustic noise** emanating from propellers, operating machinery like Diesel Generators etc., which helps sonars on other ships to detect its presence.

Such stealth features play an important role in improving the ship's survivability in any hostile

environment during operations.

'Dunagiri' would be a world-class stealth frigate with multidimensional capabilities to destroy enemies from sea, sky, and underwater.

Weapon Systems onboard

The main weapon and sensor suite of P-17A ships indicated are BrahMos SSM, LRSAM (Forward & Aft configuration) with MF STAR radar, indigenous Sonar, and Triple tube Heavy Torpedo launcher.

INS SINDHUDHWAJ

Why in news?

The Navy's Kilo-class submarine, INS Sindhudhvaj, was decommissioned from service on Saturday at Visakhapatnam after 35 years in service. With this, the Navy now has 15 conventional submarines in service.

About-

INS Sindhudhwaj was in service of the Indian Navy for 35 years. It was commissioned upon acquisition from the Soviet Union in 1987 under a deal wherein ten Kilo Class diesel-electric submarines were purchased by the Indian Navy.



It had many firsts to her credit including operationalization of the indigenized sonar USHUS, Indigenised Satellite Communication systems Rukmani and MSS, Inertial Navigation System, and Indigenised Torpedo Fire Control System.

It also successfully undertook mating and personnel transfer with Deep Submergence Rescue Vessel.

It was the only submarine awarded the CNS Rolling trophy for Innovation by the Prime Minister.

Kilo Class submarines have a life of 30 years though after refit they can remain in service for ten more years. At least three Indian Navy Kilo Class submarines got a second medium refit in a Naval shipyard in Russia a few years back. The strength of the hull and the state of repair of the propulsion system are some of the elements which decide whether a submarine is still fit to be put out at sea after completion of its shelf life and refits.


SUBMARINE ARSENAL					
Name	Builder	Launched	Commis- sioned	Decommis- sioned	Status
KALVARI CLASS (SCORPENE CLASS) – PROJECT 75					
Kalvari	<u>Mazagon Dock Limited</u>	27 Oct 2015	14 Dec 2017		Active
Khanderi		12 Jan 2017	28 Sep 2019		
Karanj		31 Jan 2018	10 Mar 2021		
Vela		6 May 2019	25 No- vember 2021		
Vagir		12 Nov 2020	Late 2022 (expected)		Sea trials
Vagsheer		20 Apr 2022	March 2024 (ex- pected)		Launched
SHISHUMAR CLASS					
Shishumar	Howaldtswer- ke-Deutsche Werft	13 Dec 1984	22 Sep 1986		Active
Shankush		11 May 1984	20 Nov 1986		Active

Shalki	Mazagon Dock Ship-builders Limited	30 September 1989	7 February 1992		Active
Shankul		21 March 1992	28 May 1994		Active

SINDHUGHOSH CLASS (KILO CLASS)


sindhughosh	Sevmash, Severodvinsk		30 Apr 1986		Refitted
Sindhudhvaj			12 Jun 1987	16 Jul 2022	Decommissioned
Sindhuraj			20 Oct 1987		Refitted
Sindhuvir			26 Aug 1988	March 2020	Refitted – Transferred to Myanmar Navy
Sindhuratna			22 Dec 1988		Refitted
Sindhukesari			16 Feb 1989		Refitted
Sindhukirti			4 Jan 1990		Refitted
Sindhuvijay			18 Mar 1991		Refitted
Sindhura kshak			24 Dec 1997	5 Sep 2017	Refitted – Exploded and sank in Mumbai
Sindhura shtra			19 Jul 2000		To be refitted

ARIHANT CLASS (NUCLEAR CLASS)					
Arihant		26 july 2009	August 2016		In service
Arighat		19 No- vember 2017	2022 (Sched- uled on August)		Sea trials completed





Indian Navy Submarines





Non-Nuclear Classes 2020







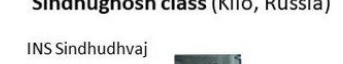



Kalvari class (Scorpène, France)



Shishumar class (Type-209, Germany)



Sindhughosh class (Kilo, Russia)



H I Sutton, 2020

MULTI-AGENCY MARITIME SECURITY GROUP (MAMSG)

Recently the first meeting of the Multi-Agency Maritime Security Group (MAMSG) chaired by the country’s first National Maritime Security Coordinator (NMSC) Vice-Admiral Ashok Kumar (Retd.) who took charge on February 16 and for the first time also brought together maritime security coordinators from all 13 coastal States and Union Territories (UTs) as well as other stakeholders.

About Multi-Agency Maritime Security Group

The MAMSG is envisaged to provide a standing and effective mechanism to ensure coordination of all aspects of maritime security, including coastal and offshore security, as well as fill the institutional, policy, technological and operational gaps in meeting present and future

security challenges.

Importantly, the group will also address maritime contingencies requiring an urgent and coordinated response.

Key Discussions

Land border and maritime border are very different. Maritime borders cannot be fenced. We cannot have the concept of zero per cent tolerance for intrusion. So, we need technology and other ways of countering it.

While India being a peninsular position was a great advantage, the cardinal principle was the country's vulnerabilities were directly proportional to assets. The more India developed, the more assets it created, the more trade and commerce increased, greater would be the threat and vulnerability in the maritime domain.

Economic interests and coastal infrastructure are critical to exploit our maritime resources.

A number of crucial policy issues on maritime security were taken up, including "mapping of existing orders and policies on maritime security to identify gaps, review of standard operating procedures for maritime contingencies, security of ports and coastal infrastructure, creation of a national maritime database, capacity building of coastal States and UTs and promotion of blue economy."

India's Maritime border

95% of Indian trade by volume is maritime and routed via 12 major and over 200 non-major ports.

Over 90% of the hydrocarbon requirements are met through seaborne imports and offshore production.

With over three lakh fishing vessels, the marine fisheries sector is also a major contributor to the economy and livelihood of the fishing community.

NAMSAI DECLARATION

Recently the states of Assam and Arunachal Pradesh signed a pact to resolve border dispute. The two states signed an agreement (Namsai Declaration) to end border issues between the two states and decided to "restrict" the number of disputed villages to 86 instead of 123. Chief Ministers of the two North-eastern neighbours met at Namsai in Arunachal Pradesh and signed the agreement.

Present-day Arunachal Pradesh, which attained Statehood in February 1987, used to be the North East Frontier Tract, administered by the Governor of Assam as an agent of the President of India. It was renamed North East Frontier Agency and brought under the Central government's control in 1954.

The two states share an 804.1 km-long border. The grievance of Arunachal Pradesh which was



made a union territory in 1972 is that several forested tracts in the plains that had traditionally belonged to hill tribal chiefs and communities were unilaterally transferred to Assam. After Arunachal Pradesh achieved statehood in 1987, a tripartite committee was appointed which recommended that certain territories be transferred from Assam to Arunachal.

The declaration marks the resolution of the

principle of disputes regarding 37 locations out of 123 disputed villages along the borders between the two states. Now disputes regarding the remaining 86 border locations will be assessed by the regional committees of both states and a final resolution will be arrived at based on the reports of these committees. Out of the 37 villages, 34 villages fell within the border of Arunachal Pradesh, the rest three lay in Assam.



HISTORY



ART & CULTURE

What's Inside?

1. INTELLECTUAL HERITAGE PROJECT
2. NATIONAL CULTURE FUND
3. MODHERA SUN TEMPLE
4. ANCIENT BUDDHIST SITES – SANNATI AND KANAGANAHALLI
5. TRIBAL UPRISINGS – PRESIDENT SPEECH

INTELLECTUAL HERITAGE PROJECT

Why in news?

The outline of this project was laid out in a letter dated June 28 and sent by Education Minister Dharmendra Pradhan to several Central ministries and departments seeking their participation.

About-

Intellectual Heritage Project is a dialogue, documentation and research programme on the Modi Government's initiatives.

The plan is to hold about 100 conferences across the country on 100 themes during these three months, where research papers based on secondary data and sources available in ministries or elsewhere will be presented.

Researchers belonging to reputed Higher Education Institutions will contribute to these papers, which will eventually be published in a book.

Some of the focus areas identified are:

“Economic Reforms and Emerging Global Economy”: The Finance Ministry and related ministries to focus on India becoming the fastest growing economy, expanding markets beyond borders, a record-breaking export year, GST, making India an investment-friendly destination, transparency in procurement, Atmarnirbhar Bharat, etc.

“India's great cultural heritage: Bhavyata

and Divyata”: The Culture Ministry to focus on “bringing our culture history back home”, “tribute to India's great freedom fighters”, Statue of Unity, Kranti Mandir (Red Fort), Jallianwala Bagh Samarak and the 150th birth anniversary of Mahatma Gandhi. The letter also refers to restoring historical sites, including Ram Janmabhoomi temple and Somnath temple, among others.

“Tech-Powered India: Transforming Work, Empowering People”: The IT Ministry to conduct research on ‘Harnessing IT for Good Governance’ and ‘Jeevan Parmaan Patra’, ‘Ayushman Bharat Digital Mission’, Atma Nirbhar India through Unified Payment Interface’ (UPI), and UMANG (Unified Mobile App for New age Governance). eads and Teachers Holistic Advancement (NISHTHA), Scheme for Higher Education Youth in Apprenticeship and Skills (SHREYAS), Rashtriya Uchchatar Shiksha Abhiyaan (RUSA) and PM-eVidya.

And the focus in sports will be on Sports Ministry programmes such as **Fit India and SPOT Scholarships**.

Social Justice Ministry to focus on **“Empowering Divyangs UDID (Unique ID for Persons with Disability)”** and the Tribal Affairs Ministry to highlight **“Restoring Janjatiya Gourav through Heroes, Histories”**, “Eklavya Model Residential School” and scholarships.

NATIONAL CULTURE FUND

Why in News?

National Culture Fund has completed 52 projects with various donors since its inception

About

Government of India has set up National Culture Fund (NCF) as a **Trust** on 28th November, 1996 under the Charitable Endowment Act, 1890.

NCF is managed by a (Governing) Council and an Executive Committee. The Council is chaired by the Union Minister of Culture and has a strength of 21 including 15 non-official members representing various fields including corporate sector, private foundations and not-for-profit voluntary organizations.

The Executive Committee is chaired by Secretary (Culture) and has a strength of 9

including 4 non-official members from the Council.

A donor/sponsor while making contributions to the NCF may indicate a project along with any specific location/aspect and also an agency for execution of the project.

Besides, the interests accrued from the Primary and Secondary Corpus is also utilized for activities associated with the field of culture.

The aim of National Culture Fund (NCF) is to establish and nurture partnerships in the field of Culture and Heritage with private and public sectors, government, non-government agencies, private institutions and foundations and mobilize resources for the restoration, conservation, protection and development of India's rich, natural, tangible and intangible heritage.

The major objectives of NCF is to administer and apply the Fund for

Conservation, maintenance, promotion, protection, preservation and up gradation of monuments protected or otherwise;



Training and development of a cadre of specialists and cultural administrators,

Innovations and experiments in arts and

Documentation of cultural expressions and forms that have lost their relevance in contemporary scenario and are either fading out or facing extinction.

Donations and contributions to NCF are eligible for 100% tax deduction under Income Tax Act, 1961 subject to limits and conditions prescribed.

MODHERA SUN TEMPLE

Why in News?

The Ahmedabad Railway Station at Kalupur in Ahmedabad City will be developed on the theme of Modhera Sun Temple in the next five years.

About Modhera Sun Temple

Modhera Sun Temple is located in Mehsana, neighbouring **Ahmedabad district**.

The Sun temple at Modhera dates back to the early 11th century and was built by **Raja Bhimdev I of the Solanki Dynasty (also Chalukya dynasty)** in 1026.

Situated on the banks of **Pushpavati River**.

It is surrounded by a terra-formed garden of flowering trees

There is a massive rectangular stepped tank

called the **surya kund** in front of it, perhaps the grandest temple tank in India.

Every year, at the time of the equinoxes, the sun shines directly into this central shrine of the temple.

The remains of the Sun Temples at Modhera are relics of times gone by when **reverence of the natural elements fire, air, earth, water** and sky were at their peak sharing space with myriad manifestations of Vedic gods.

Some of the major sun temples in India are:

Konark Sun Temple, Odisha.

It was made by **Narasimhadeva I**, the Eastern Ganga king in 13th century. It is in a shape of "Rath" (Chariot) with mandapa on a raised platform.

Brahmanya Dev Temple, Unao (Madhya Pradesh)

Suryanaar Kovil, Kumbakonam (Tamil Nadu)

It was built in 11th century in Dravidian style. It has shrines of sun god eight other celestial bodies, together called 'Navagraha'. It has beautiful fivelayered Gopuram.

Dakshinaarka Temple, Gaya (Bihar)

It is said to be built by King Prataparudra of Warangal in 13th century AD. The deity is made in granite and the idol wears Persian attire like waist girdle, boots and a jacket. It has a Surya Kund (water reservoir) nearby.

Navalakha Temple, Ghumli (Gujarat)

It was made in 11th century. It is built in



Suryanarayana Swamy Temple, Arasavalli (Andhra Pradesh).

It is said to be made by a Kalinga king in 7th century. The idol is made of granite and holds a lotus.

Solanki and Maru-Gurjara style. It faces east and is built on a large platform.

Surya Pahar Temple, Goalpara (Assam)

Martand Sun Temple, Kashmir

ANCIENT BUDDHIST SITES – SANNATI AND KANAGANAHALLI

The ancient Buddhist site on the bank of Bhima river near Kanaganahalli (forming part of Sannati site) in Kalaburagi district, has finally got some attention. The conservation project taken up now envisages the resetting of the remains of

Maha Stupa retrieved in the excavation.

Sannati and Kanaganahalli were small and ordinary villages on the bank of Bhima till 1986 when the Kali temple at the Chandralamba temple complex in Sannati collapsed. In the process of

clearing the debris, they discovered an Ashokan edict which put the villages on the world map and opened new avenues of historical research on Mauryan Emperor Ashoka and Buddhism in its early years.

The Kanaganahalli excavation opened up many marvels. For example, an 'abandoned well' in the eyes of local villagers turned out to be the magnificent Maha Stupa, which was referred to as Adholoka Maha Chaitya (the Great Stupa of the netherworlds) in the inscriptions and, more



significantly, the stone-portrait of Emperor Ashoka, surrounded by his queens and female attendants. While the Stupa is believed to be one of the largest of its time, the stone-portrait is



The stone portrait of Mauryan Emperor Ashoka, surrounded by his queens and female attendants, with the inscription "Raya Asoko" in Brahmi on it, retrieved from the excavation at Kanaganahalli near Sannati in Chittapur taluk of Kalaburagi district, Karnataka. | Photo Credit: KUMAR BURADIKATTI

considered to be the only surviving image of the Mauryan Emperor which had the inscription 'Raya Asoko' in Brahmi on it. This image of Ashoka is currently in one of the tin sheds.

The Maha Stupa is believed to have been developed in three constructional phases – Maurya, Early Satavahana and Later Satavahana periods stretching from 3rd Century B.C. to 3rd Century A.D. The Stupa is believed to have been destroyed in an earthquake.

TRIBAL UPRISINGS – PRESIDENT SPEECH

Addressing the nation President Murmu invoked four tribal revolutions that she said had strengthened tribal contribution to the freedom struggle.

Paika Rebellion (1817)

The Paika Rebellion also called the Paika Bidroha was an armed rebellion against East India Company's rule in India in 1817. The Paikas rose in rebellion under their leader Bakshi Jagabandhu and, projecting Lord Jagannath as the symbol of Odia unity, the rebellion quickly spread across most of Odisha before being put down by the Company's forces.

Bakshi Jagabandhu Bidyadhar Mohapatra Bharamarbar Rai, the highest-ranking military general of Mukund Dev II, and erstwhile holder of the lucrative Rodanga estate, led an army of Paikas to join the uprising of the Kondhs. They confronted the British on 2nd April 1817.

The Paikas were supported by the rajas, zamindars, village heads and ordinary peasants. The rebellion quickly spread to different parts of the province. Government buildings in Banapur were set on fire, policemen killed and the British treasury looted. Over the next few months, the revolt continued but was eventually overpowered by the British army. Bidyadhar was imprisoned in

1825 and died while still in jail four years later.

Bhil Uprising (1818-1831)

Bhils belonged to the Khandesh region of Maharashtra. In 1818, the British made their way into the area and began encroaching on the Bhil territories. The native Bhil Tribe was in no way prepared to accept any British changes made on their land. As a result they revolted against the foreigners on the land.

The reason for the uprising was the brutal treatment of the Bhils at the hands of the East India Company who denied them their traditional forest rights and exploited them. The British responded by sending a force to suppress the rebellion. But the revolt was not in vain, as the British gave concessions to various taxes and returned forest rights as part of the peace settlement.

Kol Rebellion (1832)

Kol uprising is one of the most well-known revolutions against the British government. The Kols were one of the tribes inhabiting the Chhotanagpur area. They lived in complete autonomy under their traditional chiefs but this changed when the British came. Along with the British came the outsiders. The colonial

government also introduced the concept of non-tribal moneylenders, zamindars and traders.

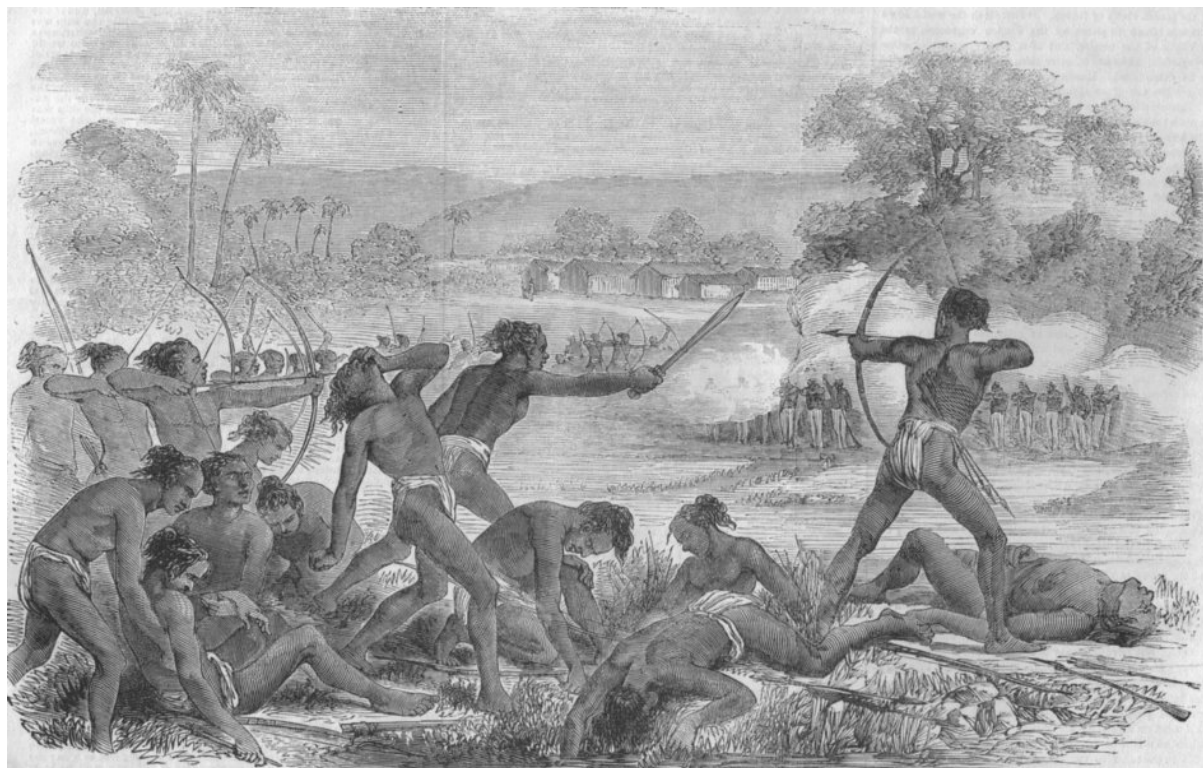
The Kols then lost their lands to farmers from outside and also had to pay huge amounts of money in taxes. This led to many becoming bonded labourers. To this the British judicial policies also caused resentment among the Kols. There was an insurrection in 1831-32 which saw the Kols organise themselves under Buddho Bhagat and revolt against the British and the moneylenders.

They killed many outsiders and burned houses. This armed resistance went on for two years after which it was brutally suppressed by the British with their superior weaponry. The Kol Rebellion was so intense that troops had to be called in from Calcutta and Benares to crush it.

Santhal Uprising (1855- 1856)

The Santhal Hul (also known as the Santhal revolt) occurred in the regions of present-day Jharkhand, Odisha and West Bengal against the British as well the Zamindari system from 1855 until 1856 when the movement was crushed by the British.

When the Zamindari system was introduced



in the Bengal presidency, the British and the Zamindars claimed the traditional Santhal land as their own. The Santhals were exploited mercilessly by the landlords who charged exorbitant rates of interest (sometimes as high as 500%) which ensured that the tribals were never able to repay their loan. They lost their land and also were turned into bonded labourers. They had to suffer extortions, forceful deprivation of property, abuse and violence, cheating in business deals, wilful trampling of their crops, etc. The government supported the landlords instead of helping the tribals whose grievances were genuine.

The rebellion started in June 1855 when two

brothers Sidhu and Kanhu Murmu organised 10000 Santhals and began an armed uprising. Their primary aim was to completely annihilate the alien or British regime. The Santhals, who predominately lived in the regions between Rajmahal and Bhagalpur known as Daman-ikoh, rose up in revolt against the outsiders, whom they referred to as “Dikus.”

They killed many moneylenders and Company agents. The revolt was very intense and massive in scale. The Santhal community celebrates the day of rebellion to this day. The revolt was violently suppressed by the British with about 20000 Santhals being killed including the two leaders.

THE EYE SEES ONLY WHAT THE MIND IS PREPARED TO COMPREHEND



"Eyes can't see if the mind is blind. –

Anonymous

The torrential rains that pelted down in the city last night, was the topic of discussion among the students at school. Nihal was upset about his family's postponed camping trip, he also told his friends how he enjoyed the beauty of the rains from his lawn and how the pollution on the roads had receded. Binny had a stooping countenance and was hesitant to share his viewpoint. The situation behind the scene was that Binny's home was completely flooded, as were most homes in the area where he lived. He, along with his family had to quickly move to a temporary shelter home which the government had arranged.

The inequalities between Nihal and Binny has made their outlook on a common rainfall starkly different. The minds of the two boys plays the major role in directing their thoughts about the rain, over and above their socio-economic position. While Nihal could watch the rain in awe, Binny could not afford to even sleep peacefully, being away from his inundated home. Because our eyes see only what our mind has prepared to comprehend, both of them have their perceptions based on their experiences.

What if we come to know that we are partially blind?

Though we think that we see everything in the world as they are, researchers have proved that human eyes have a blind spot called scotoma in the retina that is dark small area where there are no photoreceptors. So how is it that we don't see any black area in our field of vision? The answer is that our brain guesses what should be there and fits it in, automatically.

We experience the phenomena without being actually aware and hence we go on desiring for things we would like to see, or situations we would like to be in,

or wish for something to happen, by creating a virtual reality in our minds. Thus, it is an apparent perception that our eyes look at surroundings based on what is dictated by our mind.

Self-assessment based on our perceptions

We must have come across psychological games that give us a complex image with multiple angles, each giving a different way to perceive. Based on the sequence in which we find the hidden meanings or objects in the image, a report on analysis of our personality is generated. So, psychology also tries to establish a direct correlation of our mind and the things our eyes see.

Mahatma Gandhi's way of looking at the world is a case in point as he spent his initial years in self-assessment, before being a part of Indian Freedom Movement, which he has recorded in his work - "My experiments with Truth". His endeavour to establish a view on everything around him was about the truth in it that he literally relished the naked truth without attaching any veiled or unverified and pre-conceived judgements. He strived for truth, non-violence, secularism and

abolishment of untouchability; and as his thoughts and understanding were lucid, his views about these were crystal clear, in tandem with his mind.

But we have also in history an opposite character who had an extremely narrow, one sidedly accentuated understanding of an entire community of people which is today called anti-semitism. The man who made war with his hands, committed a genocide due to his hatred on the Jewish people as backstabbers who let the Germans down. His grasp on the issue was simply based on a myth that spread across the army in Germany. Hence, here the man of the moment, Hitler who had a covert understanding that led him to outrageously and overtly murder the Jews.

As humans are the only life forms to have been discovered to possess the ability to think, coordinate and to put their thoughts to action, this can be both a gift and a curse for the mankind. As a gift we can genuinely attempt to better our views on the things around us as Gandhi did in, but at the same time we are vulnerable beings, tending to live in an illusion

believing in something we feel is true and not the actual truth, like Hitler. Isn't it absurd to live in a world where at least few of our understanding is miraged?

The dynamic mind and the dull outlook

Social media has played a pivotal role in our lives that the online mode of relationship has recorded more screen time than the people to people connections in real time. But the increasing dynamics in the media interface has been contributing directly and indirectly in sculpting a - One Dimensional man, as Herbert Marcuse names the contemporary humankind. Now this one dimension is curated by the social media's working through which the individual users are fed with repetitive content based on their likes initially generated and stored. This is called the confirmative bias that social media has undertaken to primarily focus on attracting the masses with their expectations being met, which upon recurrence of recommendations continually, makes one believe and imbibe the content as reality.

This has thus single handedly

ruined the opportunity that men and women are obliged to have in taking advantage of the developments without any predetermined outlay of their interests, which in turn also affects the privacy.

On a larger scale, the confirmative bias is also emulated across by the individuals in the society and other organisations in a state which deepen the gulf between diverse groups. Not all types of content on social media or the ideologies propagandised by some deviant groups are genuine, so the rhetoric is glorified in the process ignoring the possibility of something, being a false news.

Hence such starting points of biases originating in the internal apparatus of an individual completely transform their outlook on the world, which is a silent factor that encourage the unwanted and unity-disrupting forces like terrorism, insurgencies or regionalism. The impact of these prejudices can keep multiplying if they are not confronted with truth at the right time, which requires nothing more than a change of heart.

Heart sees what is even invisible to our eyes

The reason, we use the term heart instead of mind is because the emotions and feelings are often linked to our heart while mind is all about rationality. Despite heart being an organ that merely pumps blood we give it the high regard by attaching senses to it. However, the emotions and fervour of an individual plays a substantial role in determining their opinions which largely shape their view.

If there was an autistic person whom we happen to befriend, mostly our friendship would be in terms of the pity feeling in our heart. But just because they are disabled it doesn't mean they want or expect for help. Sometimes all they want would be a mere friend to whom they can talk and crack jokes with. So, while they actually want to be treated as a normal person, our extra concern based on our understanding of their challenge might be a bad idea in the budding friendship. In such cases attaching meanings does more harm than good as we inculcate stereotyping, discriminatory and separationist attitudes.

However, our intuitions about what we see can sometimes be of great help to us. As we might sense a problem, say at a public park, if a women's expression is trying to convey that she is in danger, we cannot afford to be apathetic here.

Therefore, the ball is in our court, as the capability to distinguish our perception-based understanding about situations lies within our discernment, so as to decide - in which direction to kick the ball.

Change the way you see, to see new and look new

"The real voyage of discovery lies not in seeking new landscapes but in having new eyes", goes a saying which in its literal connotation tries to instil a change in perceptions. After all life is only 10% of what we make it, whereas the rest is about how we take it. Even the Bible says that, "The eye is the lamp of our body, if your eye is healthy, your whole body will be full of light."

Despite the oft-quoted fact that we should believe in what we see, I would like to also add that seeing is not enough, especially for developing a belief in something. Because there could always be a possibility that what we see and

hear are lies, only a thorough and meticulous investigative research would be able to reveal truth at the minimum.

A famous dohe by saint Kabir on a sarcastic note, goes as the soil says to the potter that 'perhaps today you might feel empowered to stand over me, put your feet over me, kick me and knead me, but one day you will be below me and it will be my time to knead your bones.' The takeaway point here is that as the opportunity to have dominion is a fluctuating phenomenon on which we should not rely too much. As the mind perceives oneself as superior to the other, the problems of untouchability and apartheid persisted in the past. But as Kabir says the roles could be reversed at any point and that is why it is always better to develop an empathetic outlook, that comprehends the issues of the world through our compassion filled eyes, by which we can attempt to resolve them. Or else we will only be setting ourself on the path to belittle one another based on our understanding of greatness.

Beauty lies in the Eyes of the Beholder

When we attempt to fill

everything around us with the best food, top end cars, a bungalow with an inbuilt state-of-art technology and sophisticated furnishing etc, the ultimate transformation of the house to home will unfold only when our mind is satisfied. Not everything that glitters is gold. The least among the desires getting fulfilled could mean the most happiness to someone, while the greatest achievements could also not make one content.

Reality as multifarious as it is, the mind of an actor conveniently constructs and manipulates reality according to their own experiences and beliefs as we have seen in the examples of two extreme leaders. The tradition or culture or religion we practice, could teach us what to look and what not to look at. But the onus is on us to teach ourself to tune our mind so as to not judge or to not have any preconceived notions whilst seeing and looking. Thus, being the designers of our reality, we can establish one of the strongest senses of human beings – vision, as the door to our mind's wellbeing.

By,

Nivedhita.G

PRACTICE QUESTIONS

1. Which of the following statements best describes the Tunguska event?

- a) Largest volcanic activity ever recorded in human history.
- b) Large asteroid impact that wiped out the dinosaurs.
- c) Meteor air-burst led to the destruction of vast swathes of forest.
- d) Largest known recording of seismic waves due to the tectonic movements.

2. With reference to Swadeshi Movement consider the following statements:

- 1) It contributed to the revival of indigenous artisan crafts and industries.
- 2) The National Council of Education was established as a part of the Swadeshi Movement.

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

3. Consider the following statements

- 1. The river Bedti and Varada flows into Bay of Bengal
- 2. Bedti valley has been designated as an active biodiversity zone by IUCN

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

4. Consider the following statements regarding Virtual Digital assets

- 1. Non fungible tokens transfer which results in transfer of ownership of underlying tangible asset cannot be qualified as a virtual digital asset
- 2. Mileage points, reward points or loyalty card and subscription to websites or platforms or applications can be treated as VDA.

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

5. Consider the following statements regarding Central Consumer Protection Authority.

- 1) It is a constitutional body.
- 2) It has the powers to impose both penalty and imprisonment.

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

6. Consider the following statements about Speaker of the State legislative assembly.

- 1) Similar to the Lok Sabha, the Speaker has the power to decide whether the Bill is a Money Bill or not.
- 2) The Governor shall fix the date for the Speaker's election on the aid and advice of

council of ministers.

Which of the statements is/are correct?

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

7. Which among the following steps is most likely to be taken at the time of an economic recession?

- (a) Cut in tax rates accompanied by increase in interest rate.
- (b) Increase in expenditure on public projects.
- (c) Increase in tax rates accompanied by reduction of interest rate.
- (d) Reduction of expenditure on public projects.

8. With reference to history of India, Manyam rebellion is description of which of the following events

- (a) Moplah rebellion
- (b) Munda rebellion
- (c) Rampa rebellion
- (d) Sanyasi rebellion

9. Jorbeer conservation reserve sometimes in news is located in which of the following state

- (a) Gujarat
- (b) Madhya Pradesh
- (c) Rajasthan
- (d) Uttar Pradesh

10. Recently Rare albino flap shell turtle rescued in which of the following state

- (a) Tamil Nadu
- (b) Andhra Pradesh

(c) Karnataka

(d) Odisha

11. Karakalpakstan, recently seen in the news is located in

- a) Turkmenistan
- b) Uzbekistan
- c) Tajikistan
- d) Kazakhstan

12. In which of the following relief sculpture inscriptions is 'Ranyo Ashoka' (King Ashoka) mentioned along with the stone portrait of Ashoka? [UPSC PYQ – 2019]

- a) Kanganahalli
- b) Sanchi
- c) Shahbazgarhi
- d) Sohagaura

13. Wolbachia Bacteria which is recently seen in news is used to

- (a) Treat cancer
- (b) Treat sewage water
- (c) Manufacture vaccine
- (d) Control mosquito proliferation

14. Which of the following countries is/ are not a member of G-20 ?

- 1. Turkey
- 2. Saudi Arabia
- 3. Indonesia
- 4. South Korea

Select the correct code given below

- (a) 1 only
- (b) 1 and 3 only

(c) 1, 2 and 3

(d) None of the above

15. Consider the following statements -

1. The dragon fruit is indigenous to African rainforests
2. Its flowers are hermaphrodites (male and female organs in the same flower) in nature and open at night.

Select the correct answer from the following code.

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

16. Consider the following statements-

- 1) Hyderabad was named after Hazrat Imam Ali, son in law of Prophet Mohammed
- 2) Hyderabad was founded by Mohammed Quli Qutub Shah V in 1691 CE as Golconda was overpopulated.
- 3) Sikandar Jah found the city Secunderabad

Select the correct answer from the following code

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

17. Which of the following measures will help in preventing rupee depreciation

1. Easing restriction on External Commercial Borrowings
2. Easing restrictions on raising funds through Masala bonds
3. Restricting imports of non essential commodities
4. Restricting FPI investments in India

Select the correct answer from the following code

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

18. Pranahita wildlife sanctuary recently seen in news is in which state?

- a) Telangana
- b) Gujarat
- c) Maharashtra
- d) Rajasthan

19. Consider the following pairs:

Glacier	River
1) Bandarpunch	Yamuna
2) Bara Shigri	Chenab
3) Milam	Mandakini
4) Siachen	Nubra
5) Zemu	Manas

Which of the pairs given above are correctly matched?

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

20. Consider the following statements regarding James Webb Space Telescope (JWST) and the Hubble Telescope:

- 1) The JWST will orbit the sun whilst Hubble orbits the Earth.
- 2) The JWST observes the cosmos in the infrared spectrum whereas Hubble did not have such capabilities.

Which of the statements given is/are correct?

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

21. Singalila national park recently seen in news is in which state?

- a) Uttar Pradesh
- b) Himachal Pradesh
- c) West Bengal
- d) Gujarat

22. With reference to UN world population report consider the following statements

1. South Eastern Asia and Eastern Asia is most populous region in 2022
2. India projected to surpass China as world populous country 2027 according to 27th edition of UNWP

Select the correct answer

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

23. With reference to FSIB consider the following statements

1. It will make recommendations for appointments of full-time directors for only public

sector banks

2. The new framework was proposed by the Department of revenue, Ministry of Finance.

Select the correct answer

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

24. Consider the following statements with reference to Red Panda:

- 1) It is the state animal of Sikkim.
- 2) India is home to both the Himalayan and the Chinese red panda.
- 3) It is listed as critically endangered in the IUCN Red list.

Which of the statements above is/are correct?

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

25. Consider the following minerals

1. Copper
2. Lithium
3. Tungsten
4. Cobalt

India is eyeing for exploring critical minerals in Australia. How many of the above is a critical mineral? Select the correct answer.

- a) Only 1
- b) Only two minerals
- c) Only three minerals
- d) All four minerals

26. Consider the following regarding National emblem

- 1) The state emblem of India was an adaption from the Sarnath 'Lion Capital of Asoka'
- 2) The adaptation of the Lion Capital for India's national emblem was sketched by Nandalal Bose.
- 3) There are no restrictions on the use of the national emblem.

Which of the above statements is /are correct?

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

27. Consider the following:

1. Foreign currency convertible bonds
2. Foreign institutional investment with certain conditions
3. Global depository receipts
4. Non-resident external deposits

Which of the above can be included in Foreign Direct Investments?

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

28. Consider the following statements

- 1) Sambal and Samarthya are sub-schemes of Mission Shakti
- 2) Sambal sub scheme is for the empowerment of women and consist of

erstwhile schemes of One Stop Centre (OSC), Women Helpline (WHL), Beti Bachao Beti Padhao (BBBP).

Select the correct answer from the following code.

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

29. Consider the following statements regarding POP-FAME

- 1) POP-FAME name stands for "Polycyclopropanated Fatty Acid Methyl Ester".
- 2) It is a fuel made from algae
- 3) It has calorific value lesser than many rocket fuels.

Select the incorrect answer from the following code

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

Explanation -

POP - FAME is a fuel made from bacterium . It has energy density values more than 50 megajoules per litre, against 32 MJ for petrol and 35 MJ for RP-1, which is a rocket fuel based on kerosene.

30. Consider the following statements regarding "National Child Labour Project"

1. The National Child Labour Project (NCLP) Scheme is a Central Sector Scheme
2. Under this Scheme, the children in the age

group of 9-14 years are withdrawn from work and put into NCLP Special Training Centres before being integrated with the mainstream education

3. PENCiL (Platform for Effective Enforcement for No Child Labour) online portal is developed under this project

Select the correct answer from the following code

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

31. Consider the following statements:

- 1. Asiatic Lion is naturally found in India only.
- 2. Double-humped camel is naturally found in India only.
- 3. One-horned rhinoceros is naturally found in India only.

Which of the statements given above is/are correct?

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

32. Arrange the following places in north to south direction:

- 1. Leh
- 2. Depsang
- 3. Galwan

Select the correct answer using the code given below:

- a) 1-2-3
- b) 2-3-1

- c) 2-1-3
- d) 3-2-1

33. Consider the following:

- 1. Deification of the Buddha
- 2. Treading the path of Bodhisattvas
- 3. Image worship and rituals

Which of the above is/are the feature/features of Mahayana Buddhism?

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

34. With reference to Atal Vayo Abhyuday Yojana (AVYAY), consider the following statements:

- 1) The scheme aims to improve the quality of life of the Senior Citizens by providing basic amenities.
- 2) The Ministry of Social Justice & Empowerment is the nodal ministry of the scheme.

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

35. Consider the following statements

- 1. Recent heatwaves in Europe are due to the jet streams and the high pressure system Azores High
- 2. Azores High is a large subtropical high atmospheric pressure system found in the south of Azores.

Select the correct answer from the following code

- a) 1 only
- b) 2 only
- c) Both 1 and 2

d) Neither 1 nor 2

36. Consider the following pairs

How many pairs given above are correctly matched

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

37. Consider the following statements:

1. The Constitution of India classifies the ministers into four ranks viz. Cabinet Minister, Minister of State with Independent Charge, Minister of State and Deputy Minister.
2. The total number of ministers in the Union Government, including the Prime Minister, shall not exceed 15 percent of the total number of members in the Lok Sabha.

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

38. Which of the following is/are tributaries of River Godavari?

- 1) Indravati
- 2) Wardha
- 3) Manjira
- 4) Bhima

Select the correct answer using the code given below:

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

39. Which of the following diseases have been declared as Public Health Emergency of International Concern (PHEIC) by WHO?

- a) Zika
- b) Ebola
- c) MERS
- d) Monkey pox

40. With reference to Foreign Direct Investment in India, which one of the following is considered its major characteristic?

- a) It is the investment through capital instruments essentially in a listed company.
- b) It is a largely non-debt creating capital flow.
- c) It is the investment which involves debt-servicing.
- d) It is the investment made by foreign institutional investors in the Government securities.

41. With reference to Raising and accelerating MSME performance (RAMP) scheme consider the following statements

1. RAMP will be implemented over period of five years aims at greening and technology upgradation of MSME
2. It is central sector scheme with support of world bank

Select the correct answer

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

42. In which of the following relief sculpture inscriptions is 'Ranyo Ashoka' mentioned along with the stone portrait of Ashoka?

- (a) Kanganahalli
- (b) Sanchi
- (c) Shahbazgarhi
- (d) Sohguara

43. Which of the following statements is/are correct?

- 1) Drugs Technical Advisory Board (DTAB) is a statutory body constituted under the Drugs and Cosmetics Act, 1940.
- 2) The function of DTAB is to advise the Central government and State government on technical matters related to drugs and cosmetics.

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

44. The conservation status of the Malabar pied hornbill in the IUCN Red List is

- a) Critically endangered
- b) Near Threatened
- c) Vulnerable
- d) Extinct in the wild

45. Consider the following statements regarding Prevention of money laundering act 2002

1. The Prevention of Money Laundering Act was enacted to honour India's obligations under the Vienna Convention
2. Enforcement directorate was entrusted with its enforcement of this act.

3. Enforcement directorate has powers to enter and search suspected property without judicial permission

Select the correct answer using the code given below:

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

46. Consider the following statements

1. The coffee act was enacted after the LPG reforms
2. The coffee board was not originally established as a statutory body.

Which of the statements given above is/are incorrect?

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

47. Consider the following statements regarding the Agriculture census.

1. Agriculture Census is conducted quinquennially
2. The first Agriculture Census was conducted in 1970-71
3. The basis of data collection will be on ownership holding.

Select the correct answer using the code given below:

- (a) 1 and 2 only

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

48. 'Mission Vatsalya' which is recently seen in news is a

- (a) Women protection scheme
- (b) Child protection scheme
- (c) Education of girl child
- (d) Inclusion of women in STEM subjects

49. I2U2 recently seen in news is associated with

- a) North Atlantic Treaty Organization (NATO)
- b) Organisation for Economic Co-operation and Development (OECD)
- c) Shanghai Cooperation Organization (SCO)
- d) West Asian Quad

50. Which part of the Constitution of India declares the ideal of Welfare State?

- a) Directive Principles of State Policy
- b) Fundamental Rights
- c) Preamble
- d) Seventh Schedule

Answers:

1.	C	2.	C	3.	B	4.	A	5.		6.	C	7.	B	8.	C	9.	C	10.	D	
11.	B	12.	A	13.	D	14.	D	15.		16.	C	17.	C	18.	A	19.	A	20.	A	
21.	C	22.	A	23.	D	24.	A	25.		26.	A	27.	A	28.	A	29.	B	30.	D	
31.	A	32.	B	33.	D	34.	C	35.		36.	B	37.	B	38.	C	39.	C	40.	B	
41.	C	42.	A	43.	C	44.	B	45.		46.	C	47.	A	48.	B	49.	D	50.	A	

FACT SHEET

GENERAL STUDIES - 1

Society

- United Nations report => About 50 lakh people were internally displaced in India due to climate change & disasters in 2021.
- Annual Global Trends Report by UNHCR => Over 100 million people were forcefully displaced from their homes in 2021 globally -> on account of violence, human rights abuses, food insecurity, climate crisis, war in Ukraine & other emergencies from Africa to Afghanistan.
- Largest displacements (due to disasters in 2021) => China (6 million), Philippines (5.7 million) & India (4.9 million).

Tribal population:

- Census of India 2011 => nearly 11 crore Scheduled Tribes (STs) live in India (8.6% of India's population) -> 2nd largest country in terms of tribal population.
- More than half of India's tribal population (5.5 crores approx.) -> lives outside the Scheduled Areas -> as a scattered & marginalized minority.
- Even though overall decline in under-5 age child mortality rate (from 135 in NFHS-1, 1988 to 57 in NFHS-4, 2014) => percentage among STs in comparison to others has widened.
- Child malnutrition is 50% higher in tribal children (42% compared to 28% in others)
- Malaria & tuberculosis are 3 to 11 times more common among tribes -> nearly half of the total malaria deaths are from tribal communities.

GENERAL STUDIES - 2

Polity

- District court in Bihar gave its verdict in a land dispute case after 108 years (one of the oldest pending cases in India).
- NITI Aayog report => Around 324 years needs to dispose of all currently pending cases in the country.

Social Issues

Women

- International Labour Organization Report => Afghan women's employment levels fell by an estimated 16% in the 3rd quarter of 2021, compared with 6% for men.
- As per the World Bank => In 2019, 36% of teachers in Afghan were women -> but now, most female educators have been forced out of work by the Taliban's ban on education for girls.
- Reporters Without Borders data => Less than 100 female journalists, out of 700 in Kabul only, still working.
- 25% of the women aged between 18-29 got married before the legal age of 18 (However, declined from 28% of NFHS-4) -> In rural areas (28%) & in urban areas (17%).
- Adivasis & Dalits contribute 39% of the

total early marriages in India. 58% of the total early marriages take place among the poorest wealth groups.

- According to NFHS-5 => only 4% of early marriage takes place among women who have completed 12 years of education.
- Hence, most child marriages happen among girls who did not attend 12 years of schooling & socially/economically

Elderly

- National survey by HelpAge India => Almost half of the elderly population are economically dependent on their families for income. 34% relied on pensions & cash transfers, while 40% expressed a desire to work “as long as possible”.
- Nearly 50% => inadequate income; not feel financially secure; expenditures in

backward.

- 27% of women who were illiterate & got married before 18 are underweight.
- Nearly, 64% of illiterate women suffer from anaemia & iron deficiencies.
- Number of births & Gap between marriage and first pregnancy is higher in illiterate than literate women.

excess of their savings & pension amount were not enough for survival.

- 78% said unavailability of app-based online healthcare facilities & only 13% are covered under government insurance schemes.
- 59% of elders mentioned that elder abuse was “prevalent” in society.

Health

- Malnutrition cost the country at least 77,000 crores annually, in terms of lost productivity, illness & death. India has lost about 1% of its GDP from anaemia.
- One rupee spent on nutritional interventions in India could generate nearly Rs. 36 in public economic returns.
- Lancet study in 2018 => Over 1.56 crore abortions occurred annually in India as of 2015.
- Ministry of Health and Family Welfare’s 2019-20 report on Rural Health Statistics shows 70% shortage of obstetricians or

gynaecologists in rural India.

- According to National Crime Records Bureau => one Indian person committed suicide every hour in 2019 as a result of joblessness, poverty or insolvency.
- Between 2000 to 2010 -> 60% of diseases were found to be zoonotic in nature.
- Disease outbreak incidents across the globe are increasing at a compound annual growth rate (CAGR) of 6%.
- In India alone, the annual outbreak of zoonotic diseases resulted in an estimated annual loss of \$12 billion to the economy.

International Relations

- Stockholm International Peace Research Institute (SIPRI) Yearbook 2022 by a defence think tank => says, India’s nuclear stockpile increased from 156 (in January 2021) to 160 in (January 2022), and Pakistan’s nuclear stockpile remained at 165 & China had 350 nuclear warheads

in January 2021 & 2022.

- Recently, Russia has overtaken Saudi Arabia to become India’s second-biggest supplier of oil behind Iraq as refiners snap up Russian crude available at a deep discount following the war in Ukraine.

India-UAE relationship:

- UAE is a large trading partner of India.
- Bilateral trade between the two countries => from 68% in 2021-22 to \$72.9 billion.
- India is the UAE's second-largest trading partner & largest source of tourists and manpower.
- UAE market is an important export market for Indian goods and services.
- UAE is a bigger investor in India in 2021 than Germany & France combined.

GENERAL STUDIES – 3

Economy

Taxation

- Share of indirect taxes in the gross tax revenue in FY-2019 increased by up to 50% as compared to 43% in FY-2011.
- Direct taxes reduced from 35% to 22%, leading to a loss of about 2 lakh crore to the exchequer.
- Developed State of Tamil Nadu gets only 30 paise in return for every rupee it contributes to the Union -> in contrast to Uttar Pradesh & Bihar which get 2 to 3 for every rupee contributed.

Salt sector

- India is the third-largest producer of Salt in the World after China & USA.
- Gujarat produces nearly 80% of India's total production.
- About 5 lakh people currently work in the salt industry.
- 87.6% of the total number of salt producers are small-scale producers.
- R&D
- India ranked 46th in WIPO's Global Innovation Index (GII) of 2021 (81 in 2015).
- Gross R&D expenditure is 0.7% of GDP -> very low as compared to other comparable countries -> needs to raise to 2% of GDP.
- R&D expenditure is mainly from the government -> only about 30% spent by business enterprises.

Employment

- NITI Aayog study => Number of gig workers in India is estimated to be 77 lakh in 2020-21 & expected to grow to 2.35 crore by 2029-30.
- Centre for Monitoring Indian Economy (CMIE) report => Labour participation rate of rural women stood at 9.92% (compared to 67.24% for men) in March 2022.

Infrastructure

- A paper named "The costs of bird strikes and bird strike prevention", points out that the annual costs of bird strikes are an estimated \$1.2 billion globally.
- DGCA data => In India, over 1,400 suspected/confirmed wildlife incidents recorded in 2021 (compared to 840 cases in 2016).

Road Safety

- Lancet study => Interventions focusing on 4 key risk factors -> speeding, drunk

driving, non-use of crash helmets & seat belts -> avoid about 25% to 40% of the 13.5 lakh fatal road injuries worldwide every year.

- About 14 lakh people die each year & up to 5 crores are injured due to road traffic injuries globally.
- India accounts for nearly 10% of all crash-related deaths while accounting for only

1% of the world's vehicles.

- Road Transport and Highway Ministry report => In 2020, more than 1.3 lakh deaths were recorded due to road accidents.
- 2nd decade of Action for Road Safety 2021-2030 -> sets an ambitious target of preventing at least 50% of road traffic deaths & injuries by 2030.

Livestock

- Livestock population in India is 1.6 billion.
- Farmers relying on livestock & related activities is 280 million approximately.

- Dairy industry value is \$160 billion & meat industry value is \$50 billion (in terms of trade).

Environment

- As per the official data, close to 200 elephants have been killed in collisions with trains in the past decade.
- Data on 'Accidental Deaths & Suicides in India' released by the NCRB => Over the years, heat strokes have become the 2nd leading cause of death from a natural force in India.
- Study on Narmada basin => Population of Mahseer fish reduced by 76% between

1963 - 2015 due to sand mining.

- Analysis of weather conditions over the last 50 years by Centre for Science and Environment (CSE) => reveals, All-India average temperature during the monsoon months (June-September) is higher than in summer months (March-May).
- Nearly 3% of the total glacier area decreased (from 2000 to 2020),

Forests

- As per IUCN => deforestation & forest degradation is the key cause of about 12% of global greenhouse gas emissions.
- According to Global Forest Watch => Total

area of humid primary forest in India had decreased by 3.6% from 2002 to 2021.

- Forests help in absorbing about 2.6 billion tonnes of CO₂ every year.

Science & Technology

- Mobility Report by Ericsson => India's 5G subscriptions are expected to reach 50 million by 2023 & 500 million, or 39% of all subscribers, by 2027.
- Almost 4-fold increase in mobile data traffic in the Indian region between 2021

and 2027. Low average revenue per user & high prices of spectrum poses financial challenges to the telecom companies -> inhibits their ability to invest in infrastructure.

Disaster Management

- Study funded by UN Office for Disaster Risk Reduction (UNDRR) => pointed out, pandemic & measures to contain it -> triggered cascading effects on societies &

aggravated already existing vulnerabilities.

Indian Sundarbans experienced a wide-ranging impact on several sectors due to

its interconnectedness & its pre-existing vulnerabilities aggravated due to pandemic &

Cyclone Amphan.

Security

- Union Home minister says => Number of cyber-crimes registered => 3,377 in

2012 & more than 50,000 in 2020 -> and the projected crime rate is 231% by 2025.

Present status of crypto penetration:

- Over 19 million bitcoins are in circulation at present worldwide, out of the total capped supply of 21 million bitcoins.
- There are 75 million crypto wallet holders.

1. Retired CAG Rajiv Mehrishi said: "CAG did not even meet the standards of chartered accountants of private companies when it came to assurances -> they see only the accounts that government departments want them to see." => larger issue of 'Parliamentary democracy' -> every rupee earned/spent had to be accounted.
2. Heterologous booster dose => refers, inoculation of any vaccine other than the primary dose. e-BioMedicine of Lancet Discovery Science => proved the immunogenicity & safety of heterologous vaccination. New England Journal of Medicine => heterologous boost strategies offered various immunologic advantages & increased the longevity of protection provided by the currently available vaccines. Lancet Global Health => heterologous boosters showed higher vaccine effectiveness for all outcomes.
3. Tihar jail women prisoners -> engaging in kitchen, in-house beauty parlour & attending tailoring/embroidery classes -> helps to address their concerns & provides hope for a future (earn & gain recognition).
4. Indian PM announced recruiting 10 lakh personnel in next 1.5 years, "in a mission mode".
5. Pratap Swami of Ekaveera Seva Foundation initiative => whopping 11 lakh seeds to be mixed in clay balls & air-dropped on the hillocks in Tirupati -> to turn the landscape greener.
6. RBI allowed the linking of all RuPay-enabled credit cards with UPI -> welcome step as now payment through credit cards will become more accessible through QR codes without the need of a Point of Sale (PoS) machine -> likely to increase the use in small-ticket-size payments & significant boost to overall spending via credit cards.
7. China's decision of blocking the listing of Abdul Rahman Makki as a UNSC-designated terrorist -> further strain the already deteriorating India-China relations.
8. Forest Department of Odisha is exploring a siren system -> which detects elephant herds approaching National Highway by its infrared sensor system & goes off automatically after sensing elephants crossing thereby alerting the traffic.
9. Khadi Village Industries Commission (KVIC) is undertaking an apiculture programme (setting up bee boxes) => elephants are stung by bees & driven away -> preventing human-elephant encounters.
10. Kempegowda International Airport was trending on social media for a diaper-change facility in the men's restroom => 'Baby care' was long been considered a woman's responsibility. That's changing for good.
11. Delhi police's Women's Safety Initiative "Sashakti" -> yearly self-defence training programme for women.
12. India's First AI-powered, end-to-end "digital Lok Adalat" launched in Rajasthan -> designed & developed by Jupitice (world's first Justice Technology company) => to fill the existing justice gap & address digital divide. It ensures that justice reaches to common people even in remotest places, helps in disposing disputes in pre-litigation stage/pending

disputes & provide a platform of end-to-end dispute resolution processes.

- 13. Dehumanisation will be the likely outcome when trust & humane aspects of governance get outsourced to opaque technologies -> e-Governance tools acting as a hindrance. Ex: Requirement of linking Aadhar of children for ICDS, NMMS software affecting livelihoods of rural labourers.*
- 14. Environment Ministry proposes to soften the provisions of Environment Protection Act (EPA) -> more fines & less imprisonment for violations (not apply to violations that cause grave injury or loss of life).*
- 15. India was elected as a member of the Intergovernmental Committee of UNESCO's 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (ICH) for 2022-2026 cycle.*
- 16. 5 women officers of Indian Navy created history by completing the first all-woman independent maritime reconnaissance & surveillance mission in the Arabian Sea, onboard a Dornier-228 aircraft => in line with the vision of "Nari Shakti".*
- 17. Traditional water-harvesting structures of Rajasthan called 'nadis' or 'talabs' are filled up with rainwater this monsoon season => these structures are providing drinking water to the cattle, human beings & refuge to the wild animals.*
- 18. International Day of World's Indigenous Peoples or World Tribal Day is celebrated on August 9th every year -> to recognize the achievements & contributions of the indigenous people & to improve issues such as environmental protection.*
- 19. FSIB has asked the Indian Banks' Association (IBA) to appoint an institution or firm to design and deliver a leadership development programme for PSU banks (PSBs).*
- 20. New Zealand Cricket striking a deal to remunerate its women cricketers the same as their male counterparts is a major landmark in the fight to close the gender pay gap in sports.*
- 21. 'All Women Police Stations' in Tamil Nadu => objective was to encourage women to report cases of crime/harassment, which they would find difficult to narrate to a male officer & helped to overcome the stigma of police stations not being a good place for women to visit.*
- 22. Institute of Electrical and Electronics Engineers (IEEE) warned that digital wearables such as smartwatches & fitness trackers pose threats to the security & privacy of customer data by connecting a wearable to an extended ecosystem.*

TERMS IN NEWS

- 23. One Health Approach is a collaborative, multisectoral & transdisciplinary approach with the goal of achieving optimal health outcomes by recognizing the interconnection between people, animals, plants, and their shared environment.*
- 24. Dutch Disease in economics => when a country discovers natural resources and starts exporting them to the rest of the world, it causes the exchange rate of the currency to appreciate significantly. This decreases the price competitiveness of exports from other sectors while*

encouraging imports. In the long run, these factors can contribute to unemployment, as manufacturing jobs move to lower-cost countries.

25. *Cantillon Effect => when the money supply is expanded, the fresh money does not get evenly distributed across the economy. But, injected into particular sections first -> these people are more enriched than the rest of the economy -> purchasing power of them is enhanced at the cost of the rest of society. [Criticism of the expansionary policies of central banks to counter economic downturns.]*

RELEVANT QUOTES

26. *"It is dangerously destabilizing to have half the world on the cutting edge of technology while the other half struggles on the bare edge of survival" - Bill Clinton.*
27. *"The best executive is the one who has sense enough to pick good men to do what he wants done, and self-restraint to keep from meddling with them while they do it." - Theodore Roosevelt.*
28. *Dr. B. R. Ambedkar rejected the demand of Village panchayat by quoting: "What is the village but a sink of localism, a den of ignorance, narrow mindedness and communalism. I am glad that the Draft Constitution has discarded the village and adopted the individual as its unit."*
29. *"Poverty is the parent of crime and revolution." - Aristotle.*
30. *"Courage is the most important of the virtues, because without it, no other virtue can be practiced consistently." - Maya Angelou.*