SIVARAJAVEL IAS ACADEMY
FOUNDER - DIRECTOR OF SMART LEADERS IAS

the CATALYST

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The CATALYST

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

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

Section I contains theme based Current affairs Analysis:

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

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

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

IV. Fact Sheet and Quotes have also been provided

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

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the CATALYST

From the Editor's Desk

Dear Readers,

It is a matter of pride that we as a nation could celebrate 75 years of Independence. One of the privileges of being an aspirant is to be aware of the cost of freedom and to know the sacrifice, struggle and realize the true meaning of Independence.

We have a long way to go, yet many evils we need to be freed from.

I am reminded of a truly inspiring quote of Mahatma Gandhi

"Freedom is not worth having if it does not include the freedom to make mistakes."

We are given the freedom to make mistakes and to learn from them.

Let us cherish the ideals that the freedom fighters stood for and practice tolerance, acceptance and respect for diversity.

Jai Hind

In this August Issue (From August 1 to August 31, 2022, Current Affairs), we have covered a range of topics with special emphasis on Freebie Model of Governance, RBI's guidelines on Digital lending, 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?

INDIAN PHARMACOPOEIA COMMISSION (IPC)

Why in news?

The Union Ministry for Health & Family Welfare published a new Bill to replace the colonial-era Drugs & Cosmetics Act, 1940.While most of the new Bill is a copy of the old legislation, some of the proposed revisions treat drug quality as a divisible concept, wherein it is presumed that a drug will work even if it fails on certain quality parameters

About

IPC is an autonomous institution of **Ministry of Health and Family Welfare** to set standards of drugs in country.

Functions-

Its basic function is to **update regularly standards of drugs** commonly required for treatment of diseases prevailing in the region.

These **set of standards** are published under title **Indian Pharmacopoeia (IP)** similar to British Pharmacopoeia and United States Pharmacopeia.

IPC publishes official documents for improving Quality of Medicines by way of adding new and updating existing monographs in form of IP.

It also promotes **rational use of generic medicines** by publishing National Formulary of India.

IPC was established by executive orders in **1945** according to **Indian Drugs and Cosmetics Act, 1940.**

It is headquartered in **Ghaziabad, Uttar Pradesh**.

National Formulary of India represents a **broad consensus of medical opinion** in respect of drugs and their formulations and provides the physician with **carefully selected therapeutic agents** of proved effectiveness which form the basis of national drug therapy.

Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H)

The Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H) has been formed by the Indian government as a subsidiary office under the **Ministry of Ayush.**

Established in 2010, PCIM&H is an independent organization

The Commission is engaged in development of **Pharmacopoial Standards for Ayurvedic, Unani, Siddha & Homeopathic drugs**.

PCIM&H is also acting as **Central Drug Testing cum Appellate Laboratory** for Indian systems of Medicine & Homoeopathy.

NATIONAL INTELLECTUAL PROPERTY AWARENESS MISSION (NIPAM)

Why in news?

National Intellectual Property Awareness Mission (NIPAM) has achieved target of imparting Intellectual Property (IP) awareness and basic training to 1 million students on 31st July 2022, ahead of the deadline which was 15 August 2022.

About

NIPAM, a flagship program **to impart IP awareness and basic training**, was launched on 8 Dec 2021 as a part of "Azadi Ka Amrit Mahotsav" celebrations.

The pan-India mission aims to provide awareness on intellectual property and its rights to 1 million students.

The program is being implemented by **Intellectual Property Office, the Office of Controller General of Patents, Designs and Trade Marks (CGPDTM), Ministry of Commerce and Industry.**

Intellectual property rights are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time. IPRs strike a balance between the long-term benefits and possible short term costs to the society

TYPES OF INTELLETUAL PROPERTY RIGHTS

	COPYRIGHT	PATENTS	TRADEMARKS	TRADE SECRETS	GEOGRAPHICAL INDICATIONS	INDUSTRIAL DESIGN
Meaning	protects original works of authorship, which might include literary works, music, art, and more. Today, copyrights also protect computer software and architecture	used to protect inventions (or discoveries) that are new, non-obvious, and useful, such a new process, machine, article of manufacture, or composition of matter.	logos, sounds, words, colors, or symbols used by a company to distinguish its service or product	Secrets of a business. They are proprietary systems, formulas, strategies, or other confidential information and are not meant for unauthorized commercial use by others	a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin	the ornamental or aesthetic aspect of an article → three-dimensional features, such as the shape of an article, or two-dimensional features, such as patterns, lines or colour
Legislation	Copyrights Act 1957	Indian Patents Act 1970	Trademarks Act 1999	No Specific law	Geographical Indications of Goods (Registration & Protection) Act, 1999	Design Act 2000
Need For registration	Occur Automatically – Registration not required	Must be registered	Must be registered	No registration required	Must be registered	Must be registered
Validity of the right	60 years	20 years	Unlimited	Unlimited	10 years	10 years

ATMANIRBHAR IN DIAMMONIUM PHOSPHATE

As part of the AtmaNirbhar Bharat initiative to promote self-sufficiency in Fertilisers, Government of India has been advising and supporting the Indian fertiliser companies to strengthen their backend supply chain. Given the nation's high dependence on raw material like rock phosphate and phosphoric acid, India plans to secure its supplies and hedge against price rises by expanding its footprint in mineral-rich countries through investments and multi-year import deals.

Rock phosphate is the key raw material for DAP and NPK fertilisers and India is 90 percent dependent on imports for them. Volatility in international prices affects domestic prices of fertilisers and hinders the progress and development of the agriculture sector in the country.

India's leading phosphatic fertilizer player formalized the acquisition of a 45% equity share in Baobab Mining and Chemicals Corporation (BMCC), a rock phosphate mining company based in Senegal. Further, the mining will be done in Senegal, and production of DAP will be done in India. The government of India has been partnering with the industry to enable such investments to achieve supply security goals for meeting the country's fertilizer needs.

Diammonium Phosphate:

DAP is the second most commonly used fertiliser in India after urea.Farmers normally apply this fertiliser just before or at the beginning of sowing, as it is high in phosphorus (P) that stimulates root development.DAP (46% P, 18% Nitrogen) is the preferred source of Phosphorus for farmers. This is similar to urea, which is their preferred nitrogenous fertiliser containing 46% N.

ENERGY CONSERVATION BILL

The Lok Sabha's passing of the Energy Conservation (Amendment) Bill, 2022, is being touted by many as India's major step towards meeting our climate goals.The bill is expected to directly contribute to India's Nationally Determined Contributions (NDC), which are India's commitments towards climate change action under the Paris Agreement.

What Is the Energy Conservation (Amendment) Bill, 2022?

The Energy Conservation (Amendment) Bill, 2022 was proposed in the Lok Sabha on 3 August. On Tuesday, 9 August 2022, the legislation was passed.

The bill aimed at ensuring greater use of renewable energy and enforcing penalties on industrial polluters for carbon emissions.

The original Energy Conservation Act, 2001, was created with the intention to provide efficient and effective uses of energy as well as its conservation.

What Amendments Have Been Made to the Original Act?

The following amendments have been made to the Energy Conservation Act under the recently passed bill:

- Obligation to use non-fossil sources of energy
- Carbon trading
- Energy conservation code for buildings
- Applicability to residential buildings
- Standards for vehicles and vessels
- Regulatory powers of SERCs
- Composition of the governing council of BEE

It allows the government to specify energy consumption standards. Specified consumers also need to meet a minimum share of energy consumption from fossil sources of energy.

Failure to meet this obligation may result in a penalty of up to Rs 10 lakh.

The Act originally only included energy consumption standards for equipment and appliances that consume, generate, transmit or supply energy.

However, this has now been amended to include vehicles and vessels (i.e. boats and ships.)

The Act empowered the State Electricity Regulatory Commissions to enforce any penalties; the bill also allows the SERCs to make regulations for discharging their functions.

The Bureau of Energy Efficiency came into being under the 2001 Act and included a governing council of up to 26 members, which has now been altered to up to 37 members.

DEVELOPMENT OF ENTERPRISE AND SERVICES HUB BILL 2022

The SEZ Rules, 2006 came into effect on 10th February, 2006 amid much fanfare.

Till mid-June this year, 378 SEZs were notified. And of them, till March this year, 268 SEZs were operational. Rest were de-notified.

Among the reasons listed by the government were poor market response, lack of demand for space and change in the fiscal incentive regime.

Exports from these SEZs have fallen to $102.3 billion in FY21, from $112.3 billion in FY20.

They account for less than 20% of exports now.

Set up to fulfil India's plan of becoming a manufacturing powerhouse, these special zones fell short of expectations as the competitive advantage waned and several direct tax benefits were withdrawn.

A WTO panel had in 2019 said that incentives given to entities located in SEZs violated the agreement on subsidies. So now, the government has decided to overhaul the SEZ rules.

The government is likely to introduce the Development of Enterprise and Service Hubs (DESH) Bill in the upcoming monsoon session of Parliament.

Through this, the government is seeking to go beyond export-oriented manufacturing and focus on broad-based parameters such as boosting additional economic activity, generating employment, and integrating various industrial hubs.

Unlike in the SEZ ecosystem, the government has proposed to create developmental hubs, whose focus is not limited to exports, but also to cater to the domestic markets.

The customs duty would only be paid on the inputs used and not on the expensive final goods.

The Bill also seeks to integrate existing industrial estates such as textiles and food parks by converting them into developmental hubs.

The DESH Bill classifies two types of developmental hubs -- Enterprise and services hubs. While the enterprise hubs will have land-based area requirements and be allowed for both manufacturing and services activities, services hubs will have built-up area requirements and be allowed for only services-related activities.

These hubs, which will come up under the regional boards of states, could be created by Centre or states or jointly by both or by any goods and services provider.

One of the key aspects of the new DESH Bill is also to promote the expansion of the gambit of service sector units.

Currently, only specified services such as IT, ITeS are allowed in special economic zones.

The Bill also proposes to offer tax benefits and other sops. According to reports, the draft bill proposes to freeze the corporation tax at concessional 15% for greenfield and brownfield units in the developmental hubs.

GLOBAL STRATEGY ON HUMAN RESOURCES FOR HEALTH

Why in News?

In line with the World health Organisation's (WHO's) global strategy on "Human Resources for Health: Workforce 2030", the Ministry of Health and Family Welfare issued draft guidelines to improve the working conditions of all categories of nurses in all healthcare institutions across India.

About

India's nursing workforce is about half of its active health workforce, which was estimated at 3.04 million in 2017-18 by the National Sample Survey Office (NSSO).

The WHO's global strategy calls for a safe and healthy work environment for nurses in order to ensure quality nursing care.

The Global Strategy on Human Resources for Health: Workforce 2030

In May 2014, the **67th World Health Assembly**, adopted this resolution as a follow-up of the **Recife Political Declaration on Human Resources for Health**.

Member States requested the Director-General of the World Health Organization (WHO) to develop and submit a new global strategy for human resources for health (HRH) for consideration by the 69th World Health Assembly.

The Global Strategy on Human Resources for Health: Workforce 2030 is primarily aimed at planners and policy-makers of Member States.

However, its contents are of value to all relevant stakeholders in the health workforce area, which includes public and private sector employers, professional associations, education and training institutions, labour unions, bilateral and multilateral development partners, international

organizations, and civil society.

This framework identifies the health worker competencies needed to provide quality, integrated, people-centred, health-promotive, preventive, curative, rehabilitative and palliative care services.

This provides key principles required for effective interprofessional collaborative practice, including recommendations for policy and governance structures, health system infrastructures, and education programmes and opportunities.

ANTI DOPING BILL

Doping -

Doping is the practice of using banned performance enhancing drugs (PEDs) by athletes.

The aim of doping, as the name implies, is to increase one's ability to perform at an event. In broad terms, this is achieved through enhancing muscle mass, getting an artificial boost in energy ahead of a sporting event, reducing recovery time, and concealing the effects of other drugs.

The first official case of doping was reported during the 1904 Olympics, and has, since then, plagued the world of sports.

The sanction for an anti-doping rule violation within a sport is not a criminal punishment in the sense of criminal law. It is a disciplinary sanction within sports, normally under private law.

Ethical issues raised regarding doping

The athletes who are generally roles models for the society and their involvement in acts such as use or attempted use/ possession of prohibited substances promotes this vile behavior

By nature sports aim to promote integrity, fair play and honesty, However, performance enhancing drugs undermine the integrity of sports whereas sports can no longer provide fair and equal opportunities for all with a portion of its participants cheating to gain an advantage over the others.

The usage of doping agents by one player affects the behaviour of other players when their merit is compromised by illegitimate use of drugs.

PED use has been proven to create an economic profit for teams and individuals (view graph 1) thus some athletes begin to use PED to gain economic profits which in return also creates a pressure for other sportsmen to join in in order to level the playing field. However, this concept will create a perpetual cycle where athletes will be caught in a sports arms race where they would constantly need to consume more drugs, wilder combinations and progressively higher doses; the repercussions on athletes' health would be drastic.

Need for National Antidoping bill-

Currently, doping in India is regulated by the **National Anti-Doping Agency (NADA)**, which was established in 2009 as an autonomous body under the Societies Registration Act, 1860 in order to adopt the **Copenhagen Declaration on Anti-Doping**. One issue with the existing framework is that the anti-doping rules are not backed by **legislation** and are getting challenged in courts. Further, NADA is imposing sanctions on athletes without **statutory backing**.

To give effect to the **United Nations Educational, Scientific and Cultural Organisation International Convention against doping in sport**, and compliance of such other obligations and commitments thereunder and for matters connected therewith or incidental thereto. **India is a signatory** to the United Nations Educational, Scientific and Cultural Organisation International Convention against doping in sports.

The **cases of doping have been at rise** in India since the last Commonwealth Games. With the recent cases of Prithvi Shaw (Cricket), Sanamacha Chanu (Weightlifting), Narsingh Yadav (Wrestling), Renjith Maheshwary (Athletics), Seema Punia (Discus Throw) and many more, the need for establishing a strict liability regime has arisen

The Bill creates a regulatory framework for anti-doping rule violations in sports.

Key Features of the bill

Prohibition of doping: The Bill prohibits athletes, athlete support personnel and other persons from engaging in doping in sport.

Consequences of violations: Anti-doping rule violation by an individual athlete or athlete support personnel may result in disqualification of results including forfeiture of medals, points, and prizes, ineligibility to participate in a competition or event for a prescribed period, financial sanctions, and other consequences as may be prescribed. Consequences for a violation will be determined by the **National Anti-Doping Disciplinary Panel** after a hearing.

National Anti-Doping Agency: Currently, anti-doping rules are implemented by the National Anti-Doping Agency, which was **established as a society**. The Bill provides for constituting this **National Anti-Doping Agency as a statutory body**. It will be headed by a **Director General** appointed by the central government.

Functions of the Agency include:

(i) planning, implementing and monitoring anti-doping activities, (ii) investigating anti-doping rule violations, and (iii) promoting anti-doping research.

National Board for Anti-Doping in Sports: The Bill establishes a National Board for Anti-Doping in Sports **to make recommendations to the government on anti-doping regulation and compliance with international commitments on anti-doping.**

The Board will oversee the activities of the Agency and issue directions to it. The Board will consist of a Chairperson and two members appointed by the central government.

Disciplinary and Appeal Panels: The Board will constitute a **National Anti-Doping Disciplinary Panel** for **determining consequences** of anti-doping rule violations.

The Board will also constitute a **National Anti-Doping Appeal Panel** to hear appeals against: (i) refusal to grant therapeutic use exemption, (ii) **imposition of consequences** for anti-doping rule violation, or (iii) any other decision as prescribed.

Appeals against the decision of the Appeal Panel will lie with the **Court of Arbitration for Sport** (an international body with headquarters in Lausanne, Switzerland, that settles sport related disputes).

KEY ISSUES WITH THE BILL-

The **qualifications of the Director General** are not specified in the Bill and are left to be notified through Rules.

The central government may remove the Director General from the office on grounds of misbehavior or incapacity or "such other ground".

Leaving these provisions to the discretion of the central government may affect the **independence of the Director General.** This also goes against

World Anti-Doping Agency (WADA)

- In November, 1999 the World Anti-Doping Agency (WADA) was set up under the International Olympic Committee.
- WADA is recognised by the UNESCO International Convention against Doping in Sport (2005).
- WADA's primary role is to develop, harmonise, and coordinate anti-doping regulations across all sports and countries.
- It does so by ensuring proper implementation of the World Anti-Doping Code (WADA Code) and its standards, conducting investigations into doping incidents, conducting research on doping, and educating sportspersons and related personnel on anti-doping regulations.

the mandate of the World Anti-Doping Agency that such bodies must be independent in their operations.

Under the Bill, the Board has powers to remove the members of the Disciplinary Panel and Appeal Panel on grounds that will be specified by regulations and are not specified in the Bill.

Further, there is no requirement to give them an opportunity of being heard. This may affect the **independent functioning of these panels.**

FREEBIE MODEL OF GOVERNANCE

Context

Political parties providing or promising freebies to prospective voters is found to be expandingin the past ten years.Recently, the Supreme Court has taken a decision to form a body of stakeholders to examine the distribution or promise of 'freebies' ahead of elections.

About Freebies

Freebies usually include goods like bicycles, smartphones, TVs, Laptops,a free bus pass for women and waivers on bills like water& electricity etc.

There is no such thing as a freebie in economics because ultimately somebody has to bear the cost of the supposedly free giveaways. The concept is popularly known as "There's No Such Thing as a Free Lunch."Everything has to be paid for by taxes if not today, then tomorrow.

Parties in powerannounce freebies in the form of government schemes and include freebies in their election manifesto to retain power.The opposition partiesannounce freebies in their manifestos released prior to elections.

The culture of freebies has been majorly observed in states such as Tamil Nadu, DelhiTelangana, Madhya Pradesh, Rajasthan, etc.

Rationale behind the Freebie Model

Subsidies or welfare measures are required for the proper functioning of a government to fulfil peoples' needs. However, it is sometimes confused with freebies.

Freebies not only include unviable pre-election promises but also a number of services that the government provides to meet its constitutional obligations (DPSP) towards citizens like the Public Distribution System, Free Covid Vaccine and MGNREGA.

Example:

The 'Mid-day Meal Scheme' was first introduced in 1956 by Tamil Nadu's Chief Minister K. Kamaraj and then it was adopted as a national programme a decade later.

NT Rama Rao's promise of rice at Rs. 2 per kg in Andhra Pradesh is the original avatar of the current-day National Food Security Programme.

In the developed states the overall government is comparatively better and development work is already done with respect to water, electricity, roads and subsidies. So, the parties go for freebies to attract votes and secure a victory in the upcoming elections.

If both competing parties are equally promising freebies, there will be less guarantee on who will win. However, it will mobilise a small share of votes which is crucial in winning an election.

Challenges Posed by the Model

The Freebies model of governance is neither sustainable nor economically viablenor a guaranteed election-winning formula.

It's an unhealthy practice which takes up the taxpayer's money and is not appreciated by many voters. In Delhi, free ride passes for women in the Delhi Transport Corporation (DTC) alone would cost around Rs. 300 Cr. per year. It will make the passengers, who can afford the fare, irresponsible. It may not help the poor.

Since the money used for providing freebies need to be funded from the overall budget,

other important schemes will suffer.

The promise of irrational freebies, which are not for public purposes, from public funds before the election, violates Articles 14, 162, 266(3), and 282 of the Constitution.

The powers of the EC are limited in regulating the freebie culture if introduced by a party in power.

There is no legality to these promises made by political parties. The promises made in the election manifesto cannot be construed as 'corrupt practice' under Section 123 of the Representation of Peoples Act.

The Solicitor-General says thatfreebies culture distorted the voter's informed decision-making, and that unregulated populism may lead to an economic disaster.

Judicial Intervention against the Freebie Culture

In 2013, the existence of freebie culture in Tamil Nadu have been challenged in the Supreme Court (Subramaniam Balaji vs. Govt. of Tamil Nadu).

It states that the distribution of freebies of any kind undoubtedly influences the people and it shakes the root of free and fair elections to a large degree.

SC identified that the case falls in the domain of the Election Commission (EC) and gave certain guidelines to the EC to revise the Model Code of Conduct to ensure that political parties do not make such promises in their manifestos.

ECI's Stand

ECI stated that offering freebies before or after the election is a policy decision of political parties.

ECI is of the opinion that without enabling provisions in the law, de-registration of political parties will be an overreach of powers.

Way Forward

All over the world, elections are fought based on the performance of the government or the lack of it.If the political parties in power succeed in passing on the fruit of development to the voters, freebies will not work.

If the voters are wise and educated enough, they won't fall for such tricks. Even after accepting freebies, they can choose to vote according to the performance.

If they reject freebies and promises, political parties will forward for more constructive programmes. The rejection should start with Panchayat raj and state assembly elections.

The Election Commission can look at the prospect of revising the election code of conduct by making the political parties legally bound tofulfil the promises.

If thePolitical parties focus more on the main issues of the time, i.e., food, jobs, national security, etc. half the battle is won even before the election.

Security and safety are more important for women than free ride passes. If the people are confident about the government taking care of their needs, they wouldn't need freebies at all.

Conclusion

India is a vibrant democracy which is looked upon by the entire world, especially in developing countries as a role model of democracy. Freebies culture underestimates the electoral judgement of the voter, election process, political system and parliamentary democracy.

The onus of eliminating the practice lies with the EC, the courts, the political parties and ultimately the voters.

"Give a man a fish and you feed him for a day, teach a man to fish and you feed him for a lifetime."

INTERNATIONAL RELATIONS

What's Inside?

IMF EXTERNAL SECTOR REPORT 2022

Why in news?

Recently, the IMF released its 2022 External Sector Report.

About

The External Sector Report analyzes **global external developments** and provides multilaterally consistent assessments of external positions of the world's largest economies, representing over 90 percent of global GDP.

The External Sector Report, produced **annually since 2012,** is a key part of the **IMF's surveillance**. External assessments are arrived at by integrating multilateral and country-specific perspectives, while ensuring individual economy assessments add up to a coherent, multilaterally consistent view.

INTERNATIONAL MONETARY FUND

- IMF and the World Bank are also known as the Bretton Woods twins because both were agreed to be set up at a conference in Bretton Woods in the US.
- It is governed by and accountable to the 190 countries that make up its near-global membership.
- India became a member in December 1945.
- Aim: To ensure the stability of the international monetary system (the system of exchange rates and international payments) which enables countries and their citizens) to transact with each other.

Publications:

- World Economic Outlook
- Global Financial Stability Report
- Fiscal Monitor
- Global Policy Agenda

Highlight of report

Overall Assessment Of India:

The external position in fiscal year 2021/22 (ending in March 2022) was broadly **in line with the level implied by medium-term fundamental**s and desirable policies.

Running Current Account deficits is broadly consistent with India's level of per capita income, favorable growth prospects, demographic trends, and development needs.

External vulnerabilities stem from volatile global financial conditions and significant increases in commodity prices. In part reflecting the impact of the war in Ukraine on oil prices, **the Current Account deficit is projected to widen** in fiscal year 2022/23 but then stabilize over the medium term.

The authorities have made **some progress in external trade promotion** and the liberalization of FDI and portfolio flows, but the existing tariff structure remains broadly unchanged.

Potential Policy Responses - Recommendations :

To maintain the external sector balance at a comfortable level over the medium term,

Gradual withdrawal of fiscal and monetary policy stimulus,

Development of export infrastructure, and

Negotiation of free trade agreements with main trading partners to provide a sustainable boost to exports of goods and services

Further investment regime liberalization

a reduction in tariffs, especially on intermediate goods.

Structural reforms could deepen integration in global value chains and attract FDI, hence mitigating external vulnerabilities.

Exchange rate flexibility should act as the main shock absorber, with intervention limited to addressing disorderly market conditions.

UNIVERSAL POSTAL UNION

Why in news?

The Union Cabinet has approved the ratification of amendments to the Constitution of the Universal Postal Union (UPU) as contained in the Eleventh Additional Protocol to the Constitution signed during the 27th Congress of the Universal Postal Union held at Abidjan (Cote d'Ivoire)

About

Established in **1874**, the Universal Postal Union (UPU), with its headquarters in the **Swiss capital Berne**

It is the **second oldest international organization** worldwide.

UPU has four units: the Congress, the Council of Administration, the International Bureau, and the Postal Operations Council.

Membership-

Any member country of the United Nations may become a member of the UPU.

Any non-member country of the United Nations may become a UPU member provided that its request is approved by at least two-thirds of the member countries of the UPU.

The UPU has now **192 member countries.**

India joined the UPU on July 1, 1876 and Pakistan on November 10, 1947.

Functions -

The UPU is the primary forum for **cooperation between postal sector players**. It helps to ensure a truly universal network of up-to-date products and services.

In this way, the organization fulfils an **advisory, mediating and liaison role**, and provides **technical assistance** where needed.

It sets the rules for international mail exchanges and makes recommendations to stimulate growth in mail, parcel and financial services volumes and improve quality of service for customers.

RUSSIAN WAR GAMES

Indian and Chinese troops are set to take part in military exercises in Russia later this month, the first such major war games to be hosted by Russia since its invasion of Ukraine in February.

Led by host Russia, the drill will include troops from India, Belarus, Mongolia, Tajikistan and other countries besides China. The drill, which will be held between 30th August 2022 to 5th September 2022 at various military facilities in Russia.

It is likely to be closely tracked globally given the ongoing Russian invasion of Ukraine. The drills will bring together the airborne forces, long-range and military transport aircraft and also military contingents of other countries.

RIVER KUSIYARA

Why in news

India and Bangladesh have finalised the text of Memorandum of Understanding (MOU) on interim water sharing of Kushiyara river and welcomed finalization of the design and location of water intake point on the Feni River to meet the drinking water needs of Sabroom town in Tripura as per the October 2019 India -Bangladesh MoU on this subject.

These developments took place here during the 38th Meeting of Ministerial-level Joint Rivers Commission of the two countries.

The Indian delegation was led by Union Minister for Jal Shakti Gajendra Singh Shekhawat and ZaheedFarooque, State Minister for Water Resources led the Bangladesh side.

India and Bangladesh reviewed the process of river water sharing of common rivers, sharing of flood data, addressing river pollution, conducting joint studies on sedimentation management and river bank protection during the meeting.

The meeting assumes significance as it was held after a long gap of 12 years, though the technical interactions under the framework of Joint Rivers Commission (JRC) have continued in the intervening period.

The meeting was preceded by Water Resources Secretary-level interaction on August 23, 2022.

Incidentally, the meeting on rivers took place days ahead of Bangladesh Prime Minister Sheikh Hasina's proposed visit to New Delhi in September. She will hold talks with Prime Minister Narendra Modi on issues ranging from defence to trade and connectivity.

The two leaders may also ink the pact on water sharing of Kushiyara river.

As regards the current meeting, the ministry of external affairs said, one of the important areas of cooperation, where India has been assisting Bangladesh, is sharing of real time flood data.

India has recently extended the period of flood data sharing beyond 15 October to help Bangladesh address unforeseen flood events.

India and Bangladesh share 54 rivers, of which seven rivers have been identified earlier for developing framework of water sharing agreements on priority.

During the meeting, it has been agreed to widen this area of ongoing cooperation by including eight more rivers for data exchange.

The matter will be further discussed at the Technical Level Committee of JRC.

The Joint Rivers Commission of India and Bangladesh was constituted in the year 1972 as a bilateral mechanism to address issues of mutual interest on common rivers.

DRONIER AIRCRAFT

India gifted a Dornier maritime reconnaissance aircraft to Sri Lanka on Monday, a day before a high-tech Chinese missile and satellite tracking ship docks at the island nation's strategic Hambantota port.

Vice Chief of Indian Navy Vice Admiral S N Ghormade, who is on a two-day visit to Sri Lanka, accompanied by Indian High Commissioner in Colombo Gopal Baglay, handed over the aircraft to the Sri Lanka Navy at the Sri Lanka Air Force base in Katunayake, adjoining the Colombo international airport.

Sri Lankan President Ranil Wickremesinghe was also present at the handover ceremony.

The Ministry of External Affairs (MEA) said on Monday that the aircraft would act as a force multiplier, enabling Sri Lanka to tackle multiple challenges

such as human and drug trafficking, smuggling and other organised forms of crime in its coastal waters more effectively.

"Induction of the aircraft is timely in view of the current challenges to Sri Lanka's maritime security," the MEA said in an official statement.

Gifting of the Dornier aircraft underscores the cooperation between the two maritime neighbours in defence and security spheres.

Such cooperation is envisaged to add further capability and capacity to Sri Lanka and is in line with the vision of Security and Growth for All in the Region (SAGAR)

RAZAKARS

Why in News?

Six members of 'RazakarBahini' were sentenced to death for 'crimes against humanity' by Bangladesh's International Crimes Tribunal.

About

The Razakars were **an auxiliary force of the Pakistan army** during the 1971 Bangladesh War.Composed of mostly **pro-Pakistani Bengalis and Biharis from Bangladesh** (formerly East Pakistan)

Razakar literally means **'volunteer' or 'helper'** in Persian and Urdu, but has come to mean 'collaborator' and is associated with betrayal in Bangladesh. The nationalist struggle in Bangladesh was brutally suppressed by the Pakistani army and the allied Razakars.

The Razakar forces assisted the army in raids against the local population and were accused of committing horrific atrocities and **violated Geneva Conventions of War** by killing, raping, murdering and looting the Civilians.

Razakars (Hyderabad)

There was a paramilitary group called Razakars in Hyderabad too. The Razakars were the paramilitary volunteer force of the Muslim nationalist Majlis-e-Ittehadul Muslimeen (MIM)

party in the Hyderabad State under the British Raj.

Formed in 1938 by the MIM leader Bahadur Yar Jung, they expanded considerably around the time of Indian independence. They were deployed in the cause of **maintaining Muslim rule in Hyderabad** and resisting integration into India.

The Razakars were disbanded after the merger of Hyderabad with India

Geneva Conventions

The Geneva Conventions is a body of **Public International Law**, a series of treaties on the treatment of civilians, prisoners of war (POWs) and soldiers who are outside the fight, or incapable of fighting.

- The **first Geneva Convention** protects wounded and sick soldiers on land during war.
- The **second Geneva Convention** protects wounded, sick and shipwrecked military personnel at sea during war.
- The **third Geneva Convention** applies to **prisoners of war.**
- The **fourth Geneva Convention** affords protection to civilians, including in occupied territory.

The Geneva Conventionsoriginally only addressed the treatment of combatants was later expanded to include non-combatants and civilians as well.

UN MILITARY OBSERVER GROUP IN INDIA AND PAKISTAN (UNMOGIP)

Recently, Rear Admiral Guillermo Pablo Rios of Argentina was appointed as the Head of Mission and Chief Military Observer for the UNMOGIP.

About UNMOGIP

It emerged from the U.N. Security Council Resolution 39 of January 1948 that set up the U.N. Commission for India and Pakistan (UNCIP).

The Karachi Agreement of July 1949 firmed up the role of UN-level military observers and permitted supervision of the Cease Fire Line established in Jammu and Kashmir.

Headquarters: Islamabad (November to April) and Srinagar (May to October)

India officially maintains that the UNMOGIP's role was "overtaken" by the Simla Agreement of 1972 that established the Line of Control(LoC) which with "minor deviations" followed the earlier Cease Fire Line.

Pakistan however did not accept the Indian argument and continued to seek cooperation from the UNMOGIP.

As a result of these divergent policies, Pakistan continues to lodge complaints with the UNMOGIP against alleged Indian ceasefire violations whereas India has not officially gone to the UNMOGIP since 1972 with complaints against Pakistan.

SOCIETY & SOCIAL JUSTICE

What's Inside?

THE GLOBAL EMPLOYMENT TRENDS FOR YOUTH 2022

Why in news?

The Global Employment Trends for Youth 2022: Investing in transforming futures for young people report has been recently released by International Labour organisation

About -

Key Highlights of the Report -

The report finds that the pandemic has **exacerbated the numerous labour market challenges** facing those aged between 15 and 24 years, who have experienced a much higher percentage loss in employment than adults since early 2020.

The share of **youth not in employment, education or training (NEET)** in 2020 – the latest year for which a global estimate is available – rose a level not seen in at least 15 years.

Young women are worse off than young men, exhibiting a much lower **employment-to-population ratio (EPR)**.

Data based on the household surveys conducted by the Centre for Monitoring the Indian Economy show that the **youth EPR declined by 0.9 percentage points over the first nine months of 2021** relative to its value in 2020, while it increased by 2 percentage points for adults over the same time period. The situation is particularly severe for very young people aged 15–20 years

The unemployment rate of young people in the **Asia and Pacific regio**n is projected to reach 14.9 per cent in 2022, the same as the global average, although there are important divergences between subregions and countries.

Opportunities in the green, digital and care economies

The report finds that undertaking the green, digital and care measures together as part of a big investment push would **raise global gross domestic product (GDP) by 4.2 per cent** and create an additional 139 million jobs for workers of all ages worldwide, of which 32 million would be accounted by young people.

Young women and men are well placed to

Employment-to-population ratio

The employment-to-population ratio is defined as the proportion of a country's working-age population that is employed.

EPR(%) = (Persons employed / Working-age population) x 100

A high ratio means that a large proportion of a country's population is employed, while a low ratio means that a large share of the population is not involved directly in market-related activities, because they are either unemployed or (more likely) out of the labour force altogether.

International Labour Organisation contains statistics from national sources on employment-to-population ratios by sex and age, and rural/urban areas.

benefit from the **expansion of green and blue (ocean resources and their sustainable use) economies**.

Targeted investments in **digital technologies could also absorb high numbers of young workers**. The report estimates that achieving universal broadband coverage by 2030 could lead to a net increase in employment of 24 million new jobs worldwide, of which 6.4 million would be taken by young people.

Investments in **care sectors (in health and in education)** benefit young people The report estimates that investments in care sectors would create 17.9 million more jobs for young people by 2030, in care sectors (14.4 million jobs) and in other sectors (3.4 million jobs).

TERMS

Digital intensity of industries -

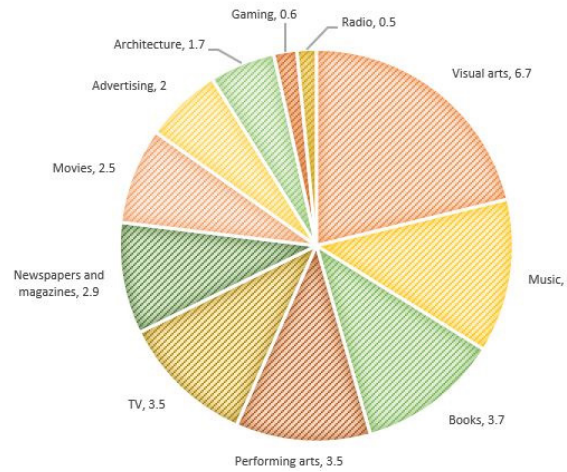
The extent to which economic sectors have **"gone digital"** The criteria used to measure digital intensity cover various aspects, including investments in ICT, robot use, employment of ICT specialists and online sales

Digital employment -

Jobs in sectors characterized by high digital intensity (HDI); those supported by digital platforms, and sometimes those concerned with economic activities directly associated with the production and distribution of ICT-related products

Orange Economy -

The Orange Economy, also known as the **Creative Economy,** is bringing together of sectors of the economy "whose main purpose is the production or reproduction, promotion, dissemination and/or the marketing of goods, services and activities that have **cultural, artistic or patrimonial content**



Care Workforce

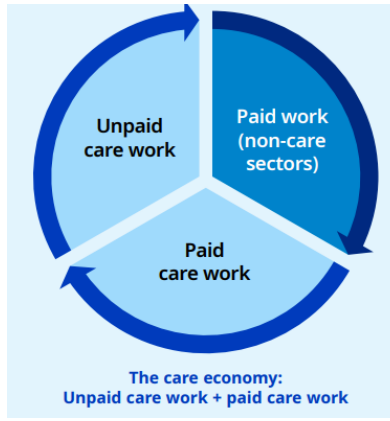
The care workforce can accordingly be defined as the sum of the following four categories of workers:

(a) care workers employed in care sectors

(b) domestic workers (employed by households)

(c) care workers employed in non-care sectors

(d) non-care workers in care sectors



ORUNODOI SCHEME

Orunodoi' or Arunodoi Scheme is a new scheme of the Government of Assam is launched on 2nd October 2020. Under 'Orunodoi', monetary benefits has been envisaged for more than 24 lac poor household in the state.

The schematic benefit has been enhanced from 830/- to Rs. 1000/ Women. They will receive the amount on the first day of every month, starting from October 2020. Women being the primary caretakers of the family are kept as beneficiaries of the scheme.

'Orunodoi' scheme will provide Financial Assistance of Rs. 1000 per month through Direct Benefit Transfer (DBT) scheme to around 19.10 Lakh Families in the state.

The District Level Monitoring Committee may devise modalities for preparing the list of eligible beneficiaries strictly as per the Guidelines.

The preliminary selection of the beneficiaries will be done at the level of Gaon Panchayat(GP) Village Council Development Committee (VCDC) Urban Local Body (ULB) based on eligibility/ ineligibility conditions.

An undertaking cum checklist of the eligibility/ ineligibility conditions has been prepared for use at GP / VCDC / ULB level which is attached at Annexure 'A'.

Only one such undertaking cum checklist should be prepared against each proposed beneficiary household.

Scope of the Scheme:

Government of Assam will provide monthly financial assistance to the eligible beneficiaries for procuring medicines, pulses, and sugar wherein Rs 400 per family per month is to be given to each beneficiary family for procuring medicines

for taking care of their health needs, Rs 200 per family per month to provide for 50%

subsidy for the 4 Kgs of pulses a family consumes in a month and Rs 80 per month per family which will effectively subsidize 50% of the monthly expenditure they will spend on the 4 Kgs of sugar that they will purchase for the house every month.

Separately, Rs 150 per family per month would be provided for the purchase of essential fruits and vegetables over and beyond what they grow in their homestead farms.

The medical and nutritional support will have a consolidated inflow of Rs 830 per month to a family.

NATIONAL CARBON FINANCE PLATFORM

A national carbon finance platform has been launched by Intellecap and Transform Rural India Foundation (TRIF), which will help Indian smallholder farmers in utilizing climate and carbon finance for sustainable agroforestry, climate smart agriculture, and other activities that can result in carbon sequestration and mitigation.

More than a million smallholder farmers are linked together by the platform, and they will receive support and training in agroforestry and climate-smart farming.

Globally, there is an increasing market demand for carbon credits from initiatives that deliver additional advantages including gender equality, improved health outcomes, and community economic growth.

However, Indian carbon producers are unable to benefit because of a lack of knowledge about climate change and carbon financing mechanisms, technical limitations that prevent the development and implementation of high-quality carbon projects, a lack of clarity regarding equitable price sharing, unclear legal arrangements, and other factors.

A platform that would increase smallholder farmers' ability to actively engage in the voluntary carbon market is required.

The newly launched platform will play a key role in empowering smallholder farmers by:

Generating awareness of different types of carbon projects (e.g., agroforestry, clean cooking, waste management, etc.) and their benefits

Enhancing technical capacity to design and implement high-quality carbon projects at scale

Supporting monetizing of carbon assets and pre-financing of projects

Establishing rules on fair practices for carbon benefit sharing

Improving resilience of vulnerable communities to climate change through improved watershed, cooler microclimate, soil erosion prevention, and enhanced biodiversity

Economic Development & Agriculture

What's Inside?

EXPORT PROMOTION CAPITAL GOODS (EPCG) SCHEME

Why in news?

The Centre is "strongly considering" the extension of the popular Export Promotion Capital Goods (EPCG) scheme,

About

The objective of the Export Promotion Capital Goods (EPCG) Scheme is to facilitate import of capital goods for producing quality goods and services and enhance India's manufacturing competitiveness.

EPCG Scheme allows import of capital goods for pre-production, production and post-production at zero customs duty. Capital goods imported under EPCG for physical exports are also exempt from IGST and Compensation Cess up to 31.03.2020.

Alternatively, the exporter may also procure Capital Goods from domestic market in accordance with provisions of Foreign Trade Policy.

Capital goods for the purpose of the EPCG scheme shall include:

- Capital Goods

- Computer systems and software which are a part of the Capital Goods

- Spares, moulds, dies, jigs, fixtures, tools & refractories

- Catalysts for initial charge plus one subsequent charge

EPCG scheme covers manufacturer exporters with or without supporting manufacturer(s), merchant exporters tied to supporting manufacturer(s) and service providers.

Dispute in WTO

The scheme was in dispute with the WTO norms, WTO has recommended the withdrawal of the scheme.The government is not too worried about the consequences of extension of the EPCG scheme at the WTO. As the WTO Appellate Body continues to be in suspension since November 2020, there is no immediate threat of any action been taken against any member.

BLUE BONDS

Why in news?

SEBI proposes blue bonds concept for sustainable financing activities

About -

The World Bank defines blue bonds "as a debt instrument issued by governments, development banks or others to raise capital from impact investors **to finance marine and ocean-based projects** that have positive environmental, economic and climate benefits."

They are a subset of the green bonds.

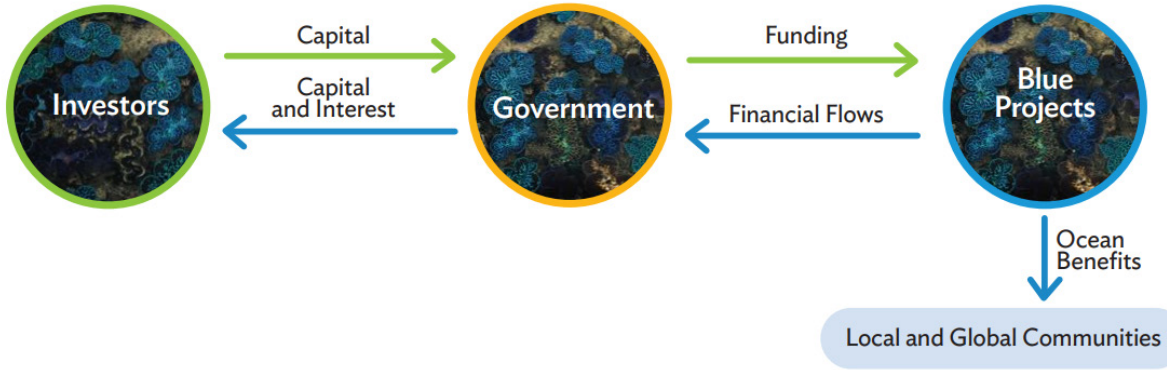
Blue bonds can be issued by governments, banks, or corporations.

On 11 October 2018, Clifford Chance advised Standard Chartered Bank as placement agent for the launch of the **world's first sovereign blue bond by the Republic of Seychelles** to advance the small island state's blue economy. The Seychelles blue bond was partially guaranteed by the World Bank (International Bank for Reconstruction and Development).

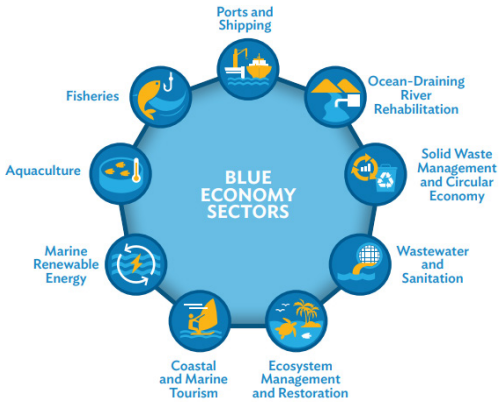
Working of Blue Bonds -

The **Sustainable Blue Economy Finance Principles** are the foundational keystone to invest in the ocean economy. Launched in 2018, they are the world's first global guiding framework for banks, insurers and investors to finance a sustainable blue economy. They promote the implementation of **SDG 14 (Life Below Water)**, and set out ocean-specific standards, allowing the financial industry to mainstream sustainability of ocean-based sectors.

The principles were developed by the European Commission, WWF, the World Resources Institute (WRI) and the European Investment Bank (EIB) and are hosted by **UNEP Finance Initiative** as part of the **Sustainable Blue Economy Finance Initiative**.



Projects Funded by blue bonds



Blue Economy

Blue Economy is defined by the World Bank as the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ecosystem."

The blue economy offers coastal nations like India **a huge socioeconomic opportunity** to responsibly use ocean resources for societal benefit.

India's blue economy accounts for roughly **4% of the GDP** and is estimated to increase once the mechanism is improved.

The coastal economy sustains over **4 million fishermen and coastal towns.** India is **the second largest fish producing nation** in the world and has a fleet of 2,50,000 fishing boats. India has a remarkable marine position with **7,517 kilometers of coastline.**

Nine of India's states have access to the coastline. India comprises **200 ports** of which 12 are major ports

Shipbuilding and shipping are also important aspects of the blue economy in India

ANTI DUMPING DUTY

Why in news?

Directorate General of Trade Remedies (DGTR) has recommended the duty on imports of 'ofloxacin' and its intermediates from China after concluding in its probe that the product has been exported at dumped prices into India, which impacted the domestic industry.

About –

An anti-dumping duty is **a protectionist tariff** that a domestic government imposes on foreign imports that it believes are priced **below fair market value**. Dumping is a process wherein a company exports a product at a price that is significantly lower than the price it normally charges in its home (or its domestic) market.

The imposition of anti-dumping duty **is permissible** under the World Trade Organisation **(WTO) regime**.

In order to **protect their respective economy**, many countries impose duties on products they believe are being dumped in their national market; this is done with the rationale that these products have the potential to undercut local businesses and the local economy.

While the intention of anti-dumping duties **is to save domestic jobs**, these tariffs can also lead to **higher prices for domestic consumers.**

In the long-term, anti-dumping duties can **reduce the international competition** of domestic companies producing similar goods.

Dumping Margin: The margin of dumping is the difference between the Normal value and the export price of the goods under complaint. It is generally expressed as a percentage of the export price.

Levy of Duty –

Anti dumping and anti subsidies& countervailing measures in India are administered by the **Directorate General of Anti dumping and Allied Duties (DGAD)** functioning in the **Dept. of Commerce** in the Ministry of Commerce and Industry

While the Department of Commerce recommends the Anti-dumping duty, it is the Ministry of Finance, which levies such duty.

The anti dumping duty is **levied over and above the normal customs duty** chargeable on the import of goods in question.

Anti dumping duty vs. Customs duty

Customs duties fall in the realm of **trade and fiscal policies** of the Government while anti dumping and anti subsidy measures are there as trade remedial measures.

The object of anti dumping and allied duties is to offset the injurious effect of international price discrimination while customs duties have implications for the government revenue and for overall development of the economy.

RBI FINANCIAL INCLUSION INDEX

The Reserve Bank of India (RBI) India's financial inclusion index (FI-Index) for the year ended March 31, 2022 improved to 56.4 from 53.9 in the previous year, with growth seen across all its sub-indices, the central bank said in a press release.

The index is published annually in July.

The central bank had in April 2021 announced that it will form the index for measuring financial inclusion, which is the focus area for the government, central bank and other regulators.

The RBI developed the composite financial inclusion index to capture the extent of financial inclusion across the country by including details of banking, investments, insurance, postal as well as the pension sector.

The index comprises of three parameters including access, usage and quality.

The FI-Index is responsive to ease of access,

availability and usage of services and quality of services, consisting of 97 indicators.

The quality parameter includes aspects such as financial literacy, consumer protection, and inequalities and deficiencies in services.

The index has been constructed without any base year and reflects cumulative efforts of all stakeholders over the years towards financial inclusion.

INDIA'S BLUE ECONOMY POLICY

Blue Economy is defined by the World Bank as the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ecosystem."

For its ties to economic growth, environmental sustainability, and national security, the blue economy generally refers to the multitude of ocean resources accessible in the country that can be utilized to aid in the creation of goods and services.

The blue economy offers coastal nations like India a huge socioeconomic opportunity to responsibly use ocean resources for societal benefit.

The rise in demand of ocean-linked products such as seafood, energy generation, etc. has led to the growth of the Blue Economy globally, with estimated global turnover ranging between US$ 3-6 trillion annually.

Overview of India's Blue Economy

The blue economy of India is a subdivision of the national economy that includes the complete ocean resources system as well as human-made economic infrastructure in the country's legal jurisdiction marine, maritime, and onshore coastal zones.

India's Blue Economy concept is multi-faceted and plays an important role in the country's economic growth because of its enormous maritime interests.

India's blue economy accounts for roughly 4% of the GDP and is estimated to increase once the mechanism is improved.

The sector has stood strong despite the challenges caused by the Covid-19 pandemic and have recorded exports worth Rs. 56,200 (US$ 7.2 billion) between April 2021-February 2022.

Ocean resources, physical infrastructure for maritime economic development, marine amenities, and coastal management services are all part of the plan to ensure economic growth and sustainability, as well as national security.

Fisheries and minerals are the two most viable components of the blue economy in India.

The two mineral deposits of commercial significance to developers in the Indian Ocean are polymetallic nodules and polymetallic huge sulphides.

Polymetallic nodules, which are golf-to-tennis-ball-sized nodules containing nickel, cobalt, iron, and manganese that grow over millions of years on the seafloor, are often discovered at 4-5 Kms in water depth.

In 1987, India was granted exclusive rights to explore polymetallic nodules in the Central Indian Ocean Basin.

It has explored four million square miles and established two mine locations since then.

The coastal economy sustains over 4 million fishermen and coastal towns. India is the second largest fish producing nation in the world and has a fleet of 2,50,000 fishing boats.

India has a remarkable marine position with 7,517 kilometers of coastline. Nine of India's states have access to the coastline.

India comprises 200 ports of which 12 are major ports that handled 541.76 million tonnes in FY21, the highest being Mormugao Port, located in Goa, which handled 62.6% of the total traffic.

Shipbuilding and shipping are also important

aspects of the blue economy in India.

The modal share of coastal shipping has the potential to increase to 33% by 2035, up from roughly 6% presently. Most of the country's oil and gas is supplied by sea, leading to the Indian Ocean region being critical to India's economic growth. This reliance is expected to increase dramatically by 2025.

The Indian Ocean's Blue Economy has become a global economic corridor. It is the world's third-largest body of water, covering 68.5 million square kms and rich in oil and mineral resources, and countries around the ocean's periphery are home to about one-third of humanity.

India has significant diplomatic interests in the Indo-Pacific, as well as international commitments in the region under the UNCLOS, such as Search and Rescue, seabed mining, and counter-piracy.

Lastly, the reach and exposure of the blue economy is further being increased due to the rapid developments of the country's inland waterways that cover 14,500 km of India, and the first containerized freight has already passed through the India-Bangladesh Protocol.

DIGITAL COMMERCE AND ITS CHALLENGES

Context

India's consumer behaviour has experienced a radical transformation at the most fundamental levels. The rise in smartphone use fuelled by affordable data plans has catalysed an online revolution in the country. The novel coronavirus pandemic has further accelerated the process of digital inclusion.

Challenges faced by small enterprises in digital inclusion

Despite the rapid advancement small enterprises such as local Kirana stores have not gained from this. This is because,

To sell on numerous platforms, sellers must maintain a separate infrastructure. This adds costs and limits participation,

Distinct terms and conditions of each platform limit the sellers' flexibility,

Centralising digital commerce transactions on a single platform creates a single point of failure.

How Open Network for Digital Commerce (ONDC) will create a level playing field?

The ONDC began its pilot in five cities in April 2022, i.e., New Delhi, Bengaluru, Coimbatore, Bhopal and Shillong. Currently, the pilot has expanded to 18 cities, and there are immediate plans to add more cities.

India's e-commerce industry is set to reach $200 billion by 2027, this shift from a platform-centric paradigm to the democratisation of the nation's online market will catalyse the inclusion of millions of small business owners and kirana businesses.

What should be done to improve the ONDC?

It is important to ensure a positive dispute resolution experience. Hence, it is imperative to support the ONDC initiative with a modern-day, cost-effective, timely and high-speed dispute resolution system. This can be done by Online Dispute Resolution or ODR.

The ODR is not restricted to the use of legal mechanisms such as mediation, conciliation and arbitration in an online environment but can be tailormade for the specific use case keeping the participants in mind

The ODR can not only digitise the entire value chain but can also facilitate an enhanced user experience

The ODR will help mitigate litigation risk and provide valuable insights into problems faced by consumers

Consumers are provided with another choice for effective redress of their grievances, thereby building trust, confidence and brand loyalty.

Need to improve Online Dispute Resolution Mechanism

Increased physical access to technology and infrastructure can only be achieved by the combined efforts of two key stakeholders - the Government and the judiciary.

Physical access to technology and infrastructure is only one aspect of access to digital infrastructure. To unlock its true potential, users of such technology should be digitally literate.

As ODR often deals with inter-state disputes where disputing parties are residing in different jurisdictions, there is a need to harmonise stamp duty and procedural requirements across different States.

It can be leveraged for the protection of e-evidence from being tampered with, thereby providing tamper-proof storage of evidence.

Government and Public Sector Undertakings (PSUs) are amongst the biggest litigants in India.

Growing Adoption of Government and Private enterprises

The National Payments Corporation of India (NPCI) has mandated platforms in

the UPI ecosystem to adopt the ODR for complaints and grievances connected to failed transactions.

Ingram, SEBI SCORES (or the Securities and Exchange Board of India SEBI COm plaints REdress System),

RBI CMS (or the Reserve Bank of India Complaint Management System),

MahaRERA (or the Maharashtra Real Estate Regulatory Authority),

MSME Samadhaan (or the Micro Small and Medium Enterprises Delayed Payment Monitoring System),

RTIOnline (or the Right to Information Online)

are other examples of ODR systems that are widely used in the country.

RBI'S GUIDELINES TO REGULATE DIGITAL LENDING

Context

The lending business, in recent years, has been disrupted by digital. Emergence of the digital eco-system that enables verification of data at source like Central Registry of Securitisation Asset Reconstruction and Security Interest (CERSAI) and Aadhaar based e-KYC along with e-sign, e-mandate, and e-stamping have enabled end-to-end digital journey facilitating the disruption.

In its effort to mitigate these concerns, the Reserve Bank of India (RBI) has come out with guidelines aimed at firming up the regulatory framework for such activities. The latest set of regulations are *based on recommendations received from its Working Group on 'Digital Lending including lending through online platforms and mobile apps' (WGDL)* which was constituted in January 2021.

Digital Lending Landscape

Digital Lending refers to lending through web platforms or mobile apps by use of technology. It utilizes automated technologies and algorithms for customer acquisition, credit evaluation, decision making, authentication, disbursements and recovery. Not only does it lower costs but also ensures speedy disbursal.

Lending Service Providers(LSPs) act in partnership with Non-Banking Financial Companies (NBFCs) who disburse credit (or a line of credit) to the customer using the former's platform, making it a multi-sided platform.

Status of Digital Lending in India

Digital lending is one of the fastest-growing fintech segments in India. It has grown exponentially from a volume of US$ 9 billion in 2012 to nearly US$ 110 billion in 2019. It is further expected that the digital lending market would reach a value of around US$ 350 billion by 2023. This business is mainly covered by fintech startups, neo-banks and Non-Banking Finance Companies (NBFCs).

Its customers particularly include small borrowers without a documented credit history and thus, not served by traditional financial institutions. Their product mix primarily imbibes short-term loans, especially those which have shorter tenures of less than 30 days.

Commercial banks are also fast joining the genre of financial intermediaries either lending digitally on their own or joining with NBFCs to share the synergies.

Reasons for rapid popularity of Digital Lending

Rapid advancements in cloud computing, artificial intelligence, and blockchain, as well as faster and more affordable internet connectivity, have fuelled the rise of FinTech start-ups, and lending has also transformed and become "digital."

The synergy of the robust customer base created by banks in the last ten years, more importantly after the launch of Pradhan Mantri Jan DhanYojana (PMJDY) scheme in August 2015 is now available

to lenders.

The sector presents a huge opportunity which is attracting a lot of investment towards it. The digital lending platforms have witnessed a compound annual growth rate of 19.6% over the previous 7 years.

According to KPMG, India's one of the leading

RBI and permitted to carry out lending business

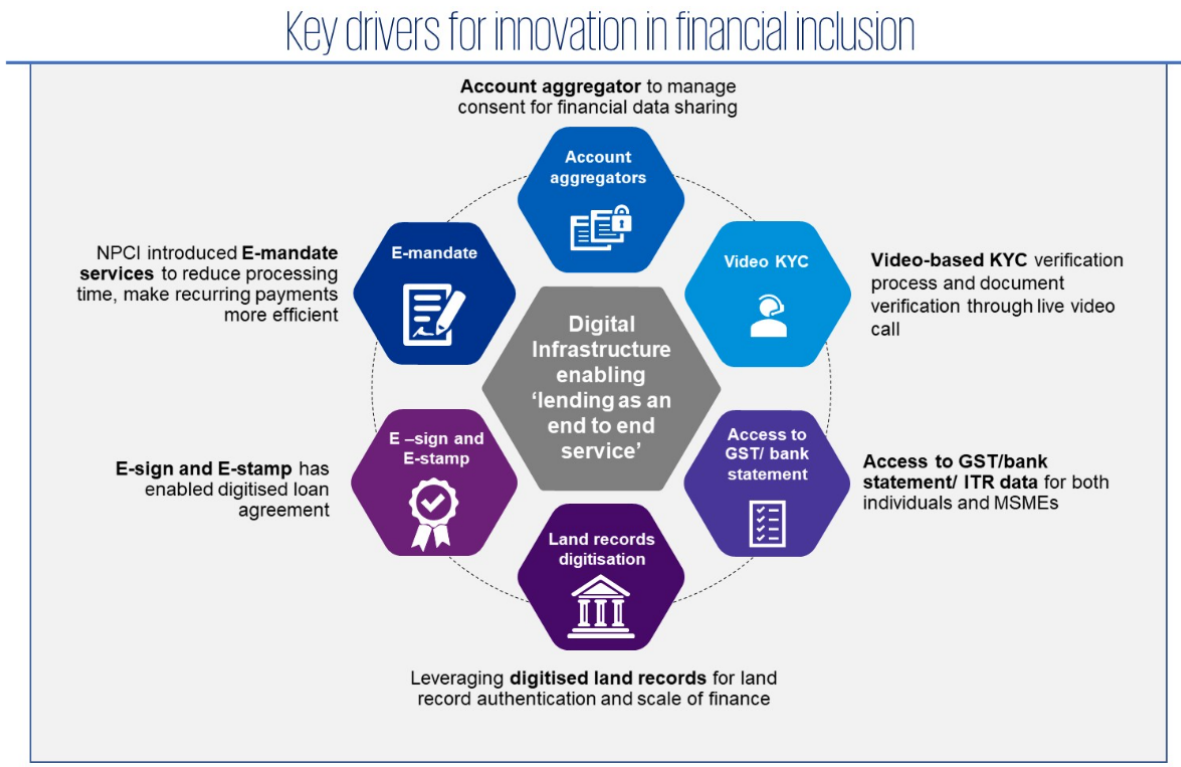
Entities authorized to carry out lending according to other statutory/regulatory provisions but not regulated by the RBI

Entities lending outside the purview of any statutory/ regulatory provision.

the borrower and the entity. This eliminates the presence of a nodal pass-through or pool account of the LSP.

Lenders must inform the borrower about all the fees, charges, and the annual percentage rate (APR) in a standardised format.

Charges payable to LSPs



providers of risk, financial and business advisory, the rapid digitization of the economy and services has been a key driver in financial inclusion and digital lending.

New regulations by the RBI and how do they address the concerns

The RBI has divided the digital lenders into 3 groups:

Entities regulated by the

These **guidelines are for the first category i.e., entities regulated by the RBI.** For other entities under the second and the third categories, the RBI has asked the respective regulator/controlling authority/ the Union Government to formulate guidelines.

The central premise of the new guidelines is **transparency**.

All loan disbursals and repayments are to be executed between the bank accounts of

in the credit intermediation process will be paid directly by the bank and not the borrower.

No automatic increase in credit limit can be made without the explicit consent of the borrower.

Data collected by digital lending apps must be need-based, with the borrower's prior consent, and can be audited if required.

Banks and the LSPs associated with them must

appoint a nodal grievance redressal officer to deal with fintech- or digital lending-related complaints.

The borrower can complain to the Integrated Ombudsman Scheme of the RBI if their grievance is not resolved by the bank within 30 days.

Regulated Entities are required to ensure that any lending carried out through digital lending apps has to be reported to Credit Information Companies (CICs).

Lending through the Buy Now Pay Later (BNPL) mode also needs to be reported to the CICs.

Benefits of digital lending

Digital lending has the potential to make access to financial products and services more fair, efficient and inclusive.

From a peripheral supporting role a few years ago, FinTech-led innovation is now at the core of the design, pricing and delivery of financial products and services.

Issues with respect to digital lending apps

Growing number of unauthorised digital lending platformsand mobile applications as:

They charge excessive rates of interest and additional hidden charges.

They adopt unacceptable and high-handed recovery methods.

They misuse agreements to access data on mobile phones of borrowers.

Conclusion

The share of digital lending may be small at present, but given their scalability they may soon become significant players. It is yet to be seen what kind of changes the digital lenders make to their operating models in light of the new regulations.

The regulations have done well to protest consumer (borrowers) interests without putting any undue pressure on lending entities or the platforms. The digital lending ecosystem has a great potential to further the financial inclusion goal of the Government. Hence the ecosystem should be carefully nurtured and supported.

INDIA WIND ENERGY MARKET OUTLOOK 2026

Context

Recently Global Wind Energy Council(GWEC) and MEC Intelligence have launched a report titled "Renewing wind growth to power the energy transition: India Wind Energy Market Outlook 2026".

Key Findings

India currently has 13.4 GW of prospective projects in wind energy, which are expected to drive installations until 2024 in the market.

India is expected to add 3.2 GW in 2022, 4.1 GW in 2023 peaking to 4.6 GW in 2024, thereafter declining to 4 GW and 3.5 GW in the next two years.

Wind industry installations have been slowing down in India since 2017.

Only 1.45 GW of wind projects were installed in 2021 with many delayed due to the second wave of Covid-19 and supply chain-related disruptions.

Energy Potential of India

India has potential of about 60 GW of wind.It is quite likely that it would go up substantially because over time some of the old wind power stations that have very low capacity could be replaced with wind turbines which have higher capacity.

There is another unexplored area, which is in the oceans.Across the world, exploration from this area is at a nascent stage. India has a bit of a problem because on eastern side it has a lot of cyclones which hit the coast. Probably, it can explore wind energy on the western side.

India is a country having around 7,516.6 km long coastline and in all of its exclusive economic zones, it has enough opportunity to harness

wind energy.

It is found by the National Institute for Wind Energy (based in Chennai) that western states have larger potential in terms of a stable, steady and a speedy windflow starting from Gujarat, Maharashtra, Karnataka to Tamil Nadu and Andhra Pradesh.

Tamil Nadu is the largest producer of wind energy producing 9,075MW in 2019.

Government Initiatives

The Ministry of New and Renewable Energy (MNRE) has granted a blanket timeline extension after the scheduled commissioning date (SCD) for projects with power purchase agreements (PPAs) signed before June 2021 to compensate for the slowdown.

The wind energy market has concentrated wind projects around a few substations of Gujarat and Tamil Nadu, thus creating bottlenecks and slowing down project activity and making it costlier than solar power.

India is expected to add 3.2 GW in 2022, 4.1 GW in 2023 peaking at 4.6 GW in 2024, thereafter declining to 4 GW and 3.5 GW in the next two years, respectively, according to the report.

National Wind-Solar Hybrid Policy 2018

The main objective of the policy is to provide a framework for the promotion of large grid-connected wind-solar PV hybrid systems for optimal and efficient utilization of wind and solar resources, transmission infrastructure and land.

National Offshore Wind Energy Policy 2015

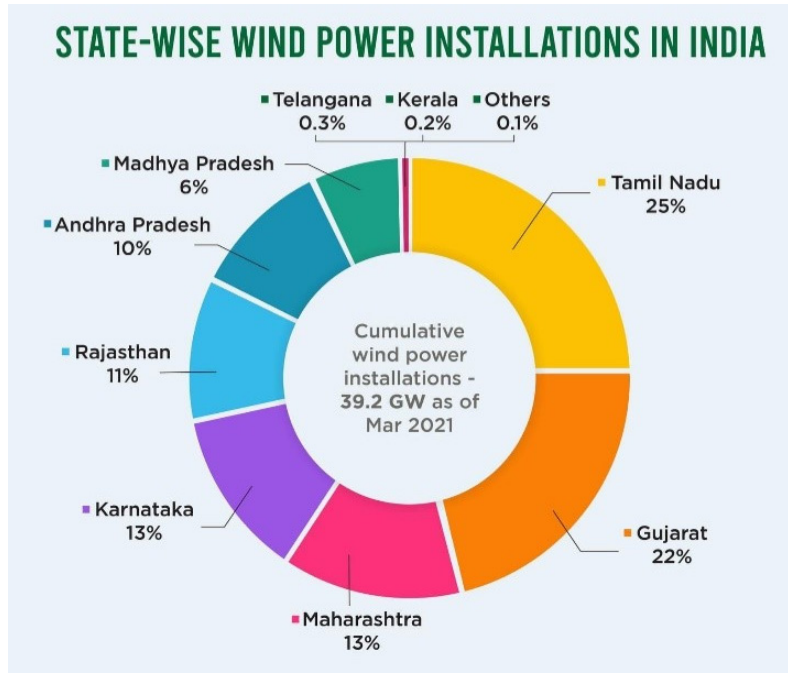
The policy was notified with an objective to develop offshore wind energy in the Indian EEZ along the Indian coastline of 7,516.6 km.

Way Forward

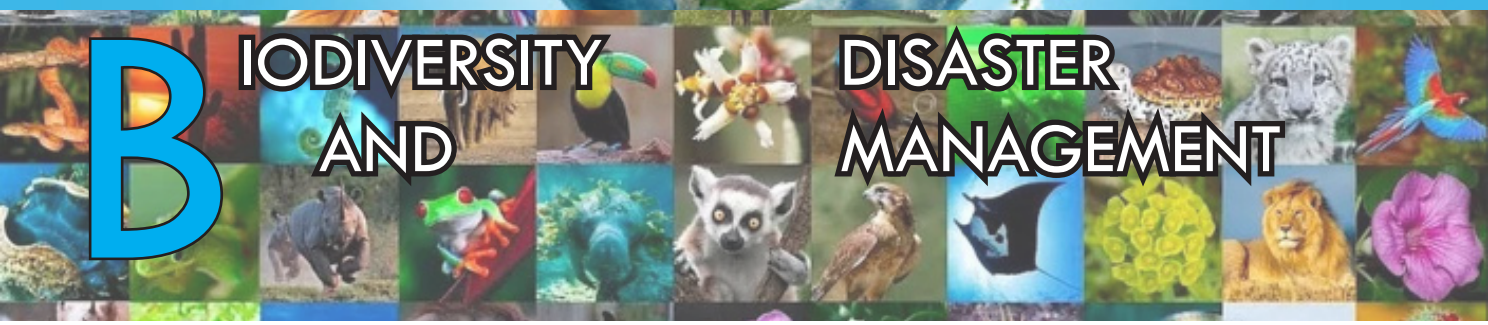
To sustain and increase growth in wind-based generation capacity, policymakers need to streamline the procedures to grant permits, including land allocation and grid connection projects.

Workforce planning for large-scale renewables deployment should be an early policy priority and investment in grids must treble from current levels through 2030.

There is also a need for greater public-private co-operation to confront "the new geopolitics of the wind supply chain".



GEOGRAPHY, ENVIRONMENT, BIODIVERSITY AND DISASTER MANAGEMENT



What's Inside?

HASDEOARANYA REGION – CHATTISGARH

The HasdeoAranya forests are called the lungs of Chhattisgarh. Over the past one year, protests against mining in this region have erupted several times and some still continue to sit-in demanding a complete stop to mining. Amidst this, the Chhattisgarh Legislative Assembly unanimously passed a private member resolution urging the Centre to cancel allocation of all coal mining blocks in the ecologically sensitive area.

TETRAPODS

Over the past few years, Chellanam, an idyllic coastal village in Kerala's Ernakulam district, would unfailingly hit the headlines during the monsoons for massive sea incursion and widespread destruction of homes. However, this monsoon, despite heavy spells of rain lashing Ernakulam district from May, Chellanam has remained largely unaffected due to the construction of a new tetrapod-based seawall.

Tetra pod in Greek means four-legged.These are four-legged concrete structures that are placed along coastlines to prevent erosion and water damage.Tetrapods were first used in France in the late 1940s to protect the shore from the sea.

They are typically placed together to form an interlocking but porous barrier that dissipates the power of waves and currents.These are large structures, sometimes weighing up to 10 tonnes, and interlocked tetra pods act as a barrier that remains stable against the rocks when buffeted by waves.

WORLD ELEPHANT DAY

The World Elephant Day is celebrated every year on 12th of August, with the aim to acknowledge Elephants' significance in our ecosystem.It emphasizes on raising the awareness of the threats that elephants face in their daily lives. Whether poaching, mistreatment in captivity, or habitat loss, every single factor plays a role in animal abuse.The population of elephants has declined by 62 per cent over the last decade and it may get extinct by the end of the next decade.

India has the largest number of wild Asian Elephants, estimated at 29,964 according to 2017 census by Project Elephant, i.e., about 60% of the species' global population.

The friction between humans and elephants termed Human-Elephant Conflict (HEC) which occurs mainly over space and is a major concern across the country for governments, conservationists and people living close to the wild animals.Loss of natural habitat and fragmentation have been bringing wild elephants closer to human habitations, sparking these conflicts.Over 500 humans are killed in encounters with elephants annually, and crops and property worth millions are also damaged.Many elephants are also killed in retaliation due to conflict.

Monitoring of Illegal Killing of Elephants (MIKE) Programme: Mandated by Conference of Parties (COP) resolution of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).The MIKE program started in South Asia in the year 2003 with the following purpose:

To provide information needed for elephant range States to make appropriate management and enforcement decisions, and to build institutional capacity within the range States for the long-term management of their elephant populations.

Government Initiatives:

Project Elephant: Project Elephant was launched in 1991-92 as a Centrally Sponsored Scheme of the Ministry of Environment and Forests.

Elephant Reserves: Elephant Reserve is a management entity notified by the State Governments as per recommendation of Government of India.It includes Protected Areas, forest areas, corridors and private/reserve lands. Agasthiyamalai (Tamil Nadu) will be the country's 32nd elephant reserve.

Conservation Status:

International Union for Conservation of Nature (IUCN) Red List of threatened species:

African Forest Elephant- Critically Endangered

African Savanna Elephant- Endangered

Asian Elephant- Endangered

Convention of the Migratory species (CMS): Appendix I

Wildlife (Protection) Act, 1972: Schedule I

AIR QUALITY AND HEALTH IN CITIES REPORT

Recently, a report was released by the State of Global Air titled Air Quality and Health in Cities, which analysed pollution and global health effects for more than 7,000 cities around the world between 2010 and 2019. The study ranked cities on the basis of two major air pollutants found — fine Particulate Matter (PM2.5) and Nitrogen Dioxide (NO2).

Findings:

Delhi and Kolkata are ranked first and second in the list of top 10 most polluted cities when PM 2.5 levels were compared.

While exposures to PM 2.5 pollution tend to be higher in cities located in low- and middle-income countries, exposure to NO2 is high across cities in high-income as well as low- and middle-income countries. No Indian city appeared in the list of top 10 or even top 20 polluted cities when NO2 levels were compared. Average NO2 levels for Delhi, Kolkata and Mumbai, according to the report, ranged from 20-30 µg/m3. This list saw Shanghai at the top with an average annual exposure of 41 µg/m3.

NO2 comes mainly from the burning of fuels in older vehicles, power plants, industrial facilities and residential cooking and heating. As city residents tend to live closer to busy roads with dense traffic, they are often exposed to higher NO2 pollution than residents of rural areas.

PADDY DWARFING – PHYTOREO VIRUS

Recently, a mysterious disease hit the paddy crop causing "dwarfing" of the plants in Punjab and Haryana.

Agriculture scientists have narrowed down the cause of a mystery disease causing "dwarfing" of rice plants in Punjab and Haryana to either grassy stunt virus or phytoplasma bacteria. The vector responsible for their transmission is the brown plant hopper, an insect pest that sucks sap from the stems and leaves of rice plants.

Paddy Dwarfing:

The characteristic symptoms of rice dwarf disease are stunting of the plant and appearance of white chlorotic specks on foliage. The height of the stunted plants showed a reduction from 1/2 to 1/3rd of the normal plants. These plants had shallow roots and could be easily uprooted. Such plants were observed in almost all the cultivated varieties in the farmers' fields.

Dwarfing of plants was reported at 10% to 25% in general and in some cases, it exceeded 40%. The incidence of stunting was more pronounced in early sown paddy crops, irrespective of the variety.

Prevention:

Since there is no corrective measure for the viral disease, farmers should regularly monitor the crop for the presence of WBPH and a few plants should be slightly tilted and tapped 2-3 times at the base at weekly intervals. If WBPH nymphs/adults are seen floating on water, then insecticides can be sprayed towards the base of the plants. The farmers are advised to follow the transplanting dates advised by Punjab Agricultural University PAU since stunting was observed to be more in the early transplanted crops. It will not only help in managing viral disease but also save water.

MITHILA MAKHANA – GI TAG

The government has recently awarded the Geographical Indication (GI) tag to Mithila Makhana. The move is expected to help growers get the maximum price for their premium produce.

Mithila Makhana or Makhan (botanical name: Euryale ferox Salisb.) is a special variety of aquatic fox nut cultivated in Mithila region of Bihar and Nepal. Makhana is the one of the three prestigious cultural identities of Mithila. Pan, Makhan and Machh (fish) are the three prestigious cultural

identity of Mithila.

It is also very famous in Kojagara festival of Maithil Brahmins celebrated for newly married couples. Makhana contains protein and fiber, along with micronutrients like calcium, magnesium, iron, and phosphorus.

Many products from Bihar have been granted GI tag such as: BhagalpuriJardalu Mango, Katarni Rice, Magahi Betel (Paan), Shahi Litchi, Silao Khaja (a delicacy), Madhubani Painting, Pipli Work.

Geographical Indication (GI) Tag:

Geographical Indication (GI) is an indication used to identify goods having special characteristics originating from a definite geographical territory. The Geographical Indications of Goods (Registration and Protection) Act, 1999 seeks to provide for the registration and better protection of geographical indications relating to goods in India.

It is governed and directed by the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). It is primarily an agricultural, natural or a manufactured product

(handicrafts and industrial goods). This tag is valid for a period of 10 years following which it can be renewed.

Significance:

Once a product gets this tag, any person or company cannot sell a similar item under that name. GI registration of a product provides it legal protection and prevention against unauthorised use by others. GI tag helps in promoting the exports of the product. It also provides comfort to customers about the authenticity of that product.

RAMSAR SITES

The Union environment ministry on Wednesday that India has added 10 more wetlands, taking the total Ramsar sites to 64.

The new sites include six wetlands from Tamil Nadu and one each from Goa, Karnataka, Madhya Pradesh and Odisha.

So far, 64 wetlands covering an area of 12,50,361 ha have been designated as Ramsar Sites of International Importance from India.

The 10 new designated sites include Koonthankulam Bird Sanctuary, a man-made wetland in Tirunelveli district of Tamil Nadu.

This is the largest reserve for breeding resident and migratory water birds in south India and an important bird and biodiversity area forming part of the central Asian flyway.

The wetland also irrigates about 190 acres of paddy

The Nanda Lake in Goa has freshwater marshes that lie adjacent to one of the major rivulets of the Zuari river.

This enables the locals to store water during the off-monsoon season.

The stored water is also utilised to cultivate paddy downstream of the lake and supports fishing and recreation.

The lake is a habitat for Black-headed ibis, Common kingfisher, Wire-tailed swallow, Bronze-winged jacana, Brahminy kite among others.

The Satkosia gorge, which has also been included, spreads along the Mahanadi river in Odisha.

Established in 1976 as a wildlife sanctuary, Satkosia is the meeting point of two biogeographic regions of India – the Deccan Peninsula and the Eastern Ghats, contributing immense biodiversity, the ministry said.

EASTERN RAJASTHAN CANAL PROJECT

What is the Eastern Rajasthan Canal Project (ERCP)?

The Eastern Rajasthan Canal Project aims to harvest surplus water available during the rainy season in rivers in southern Rajasthan such as Chambal and its tributaries including Kunnu, Parvati, Kalisindh and use this water in south-eastern districts of the state where there is a scarcity of water for drinking and irrigation.

According to the state Water Resources Department, Rajasthan, the largest state of India with a geographical area of 342.52 lakh hectares which amount to 10.4 per cent of the entire country, holds only 1.16 per cent of India's surface water and 1.72 per cent of groundwater.

Among the state's water bodies, only the Chambal river basin has surplus water but this water cannot be tapped directly because the area around the Kota barrage is designated as a crocodile sanctuary.

Through the help of diversion structures, intra-basin water transfers, linking channels and construction of pumping main feeder channels, the ERCP aims to create a network of water channels which will cover 23.67 per cent area of Rajasthan along with 41.13 per cent population of the state.

In the budget of 2017-18, the then Vasundhara Raje-led BJP government in Rajasthan had said that the ERCP will help fulfil the long-term irrigation and drinking water needs of 13 districts-Jhalawar, Baran, Kota, Bundi, Sawai Madhopur, Ajmer, Tonk, Jaipur, Karauli, Alwar, Bharatpur, Dausa and Dholpur.

Subsequently, the project was approved by the Central Water Commission in 2017.

In her 2017-18 budget speech, Raje had also said that the state government had sent a proposal to the central government to declare ERCP as a project having national importance. Since then, this has remained a consistent demand of subsequent governments in Rajasthan across party lines.

According to the Rajasthan Water Resources Department, ERCP is estimated to create an additional command area of 2 lakh hectares and an area of 4.31 lakh hectare will get irrigation facilities because of this project. The ERCP also intends to improve the groundwater table in rural areas of the state,

positively influencing the socio-economic conditions of people from these areas.

It also adds special emphasis on the Delhi Mumbai Industrial Corridor (DMIC), hoping that sustainable water sources will enhance and help industries grow in these areas resulting in investment and revenue.

There are multiple sub-projects under the ERCP with budgets allocated for each phase.

PENINSULAR ROCK AGAMA

Why in News?

Recently, a study has been carried out by researchers from Indian Institute of Science (IISc), Bengaluru to understand several environmental factors (including urbanisation) that could affect the presence of the Peninsular Rock Agama/ South Indian Rock Agama.

About

The Peninsular Rock Agama (Psammophilus dorsalis) which is a type of **garden lizard** has a strong presence in southern India. This lizard is a **large animal,** strikingly coloured in orange and black.

They do not generate their own body heat, so **they need to seek warmth from external sources** like a warm rock or a sunny spot on the wall.

It belongs to the **Precocial Species**, those in which the young are relatively mature and mobile from the moment of birth or hatching.

It is majorly found in India (Asia).Indian

states of Tamil Nadu, Chhattisgarh, Kerala, Andhra Pradesh, Karnataka, Bihar hosts the population of the lizard.

Protection Status: IUCN Red List - Least Concern

Importance of the Species

Rock Agama can **indicate which parts of the city are warming**, and their numbers show how the food web is changing.

These lizards eat insects and are in turn eaten by raptors, snakes and dogs, **they cannot live in places where there are no insects.**

Insects are critical components of a healthy ecosystem as they provide many services, including pollination.

Hence, the presence of rocky agamas presents a good model system to **understand other aspects of the ecosystem.**

WORLD COCONUT DAY

Why in News?

The World Coconut Day (WCD) is observed every year on September 2 to enhance coconut farming with focus on productivity and product diversification.

About

The theme for this year's event is "**Growing Coconut for a Better Future and Life**"

It is celebrated to commemorate the foundation day of the **International Coconut Community (ICC)** / Asia Pacific Coconut Community (APCC).

International Coconut Community (ICC)

The International Coconut Community (ICC) is an intergovernmental organization of coconut producing countries organized in 1969 under the aegis of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP). The ICC Secretariat is located in **Jakarta**, Indonesia and is headed by an Executive Director.

ICC currently has **20 coconut producing member countries** accounting for over 90 percent of world coconut production and exports of coconut products.

Membership to the Community is **open** to **all coconut producing countries**, with the unanimous consent of the existing members and by acceding to the agreement establishing the Coconut Community.

1969 - 2018

2018 - present

Some facts

Indonesia is the world's leading coconut producer. The Philippines and India are the world's second and third largest coconut producer in the world respectively.

Kerala — which is known as the 'land of coconuts' and derives its name from 'Kera' meaning coconut tree.

Kerala is the largest producer of coconut in India followed by Karnataka and Tamil Nadu.

Coconut Development Board (CDB)

Coconut Development Board (CDB) is a **statutory body** established under the Ministry of Agriculture for the integrated development of coconut and coconut-related.

The Board which came into existence in 1981, functions under the administrative control of the Ministry of Agriculture, with its headquarters at **Kochi in Kerala**.

Favorable conditions to grow coconut

- Coconut requires an equatorial climate with high humidity.
- The ideal mean annual temperature is 27 degree C with 5-7 degrees diurnal variation.
- The palm does not withstand prolonged spells of extreme variations.
- A well-distributed rainfall of 1300-2300 mm per annum is preferred.

GREAT INDIAN BUSTARD

Why in News?

The Great Indian Bustards (GIB) has adopted a new habit of laying a clutch of two eggs at a time after having a diet with additional proteins during the monsoon season. Scientists have discovered the new proclivity in Jaisalmer district's Desert National Park (DNP).

About

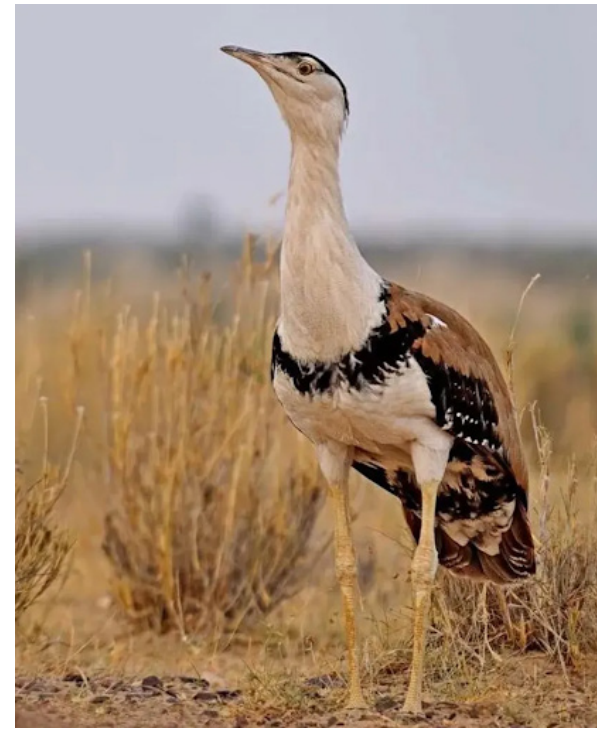
The scientist **Wildlife Institute of India (WII)** who is leading the project said that about 5% to 10% of the female GIBs had been detected in the past laying two eggs each.

But **this is for the first time that such a high incidence**, with the signs of an evolving habit, had been observed.

What is a clutch?

A clutch of eggs is a group of eggs produced by birds, amphibians, or reptiles, often at a single time, particularly those laid in a nest. Clutch size differs greatly between species, sometimes even within the same genus.

It may also differ within the same species due to many factors including habitat, health, **nutrition,** predation pressures, and time of year.



About Great Indian Bustard

The Great Indian Bustard *(Ardeotisnigriceps)*, is a bustard native to the Indian subcontinent. Bustards are large terrestrial birds found in dry grasslands and steppe regions. It is also known as the Indian Bustard; it is **among the heaviest**

of flying birds in existence.

It is the **State bird of Rajasthan** and is considered the **flagship grassland species**, **representing the health of the grassland ecology.**The **GIB is now found in a small number only in western Rajasthan**, while Gujarat claims to have a few females left in its **Banni Grassland Reserve**.

Population

Less than 150 individuals of these birds persist in a few fragmented pockets of Rajasthan and Gujarat.As per the last count of the GIB in 2018, there were around **127 birds in the Desert National Parkin Rajasthan.** Excessive hunting, the decline of natural habitation, and construction activities like electric posts are some of the main reasons for the decline of GIB.

Protection Status

IUCN Red List: **Critically Endangered**

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): **Appendix I**

Convention on Migratory Species (CMS): **Appendix I**

Wildlife (Protection) Act, 1972: **Schedule 1**

CHEETAH RELOCATION TO INDIA

India will be soon releasing cheetahs from South Africa and Namibia into the wild at Kuno Palpur in the Sheopur district of Madhya Pradesh.

It will initiate India's ambitious plan of transcontinental relocation of cheetahs.

The country's last spotted cheetah died in Chhattisgarh in 1947 and was declared extinct in 1952.

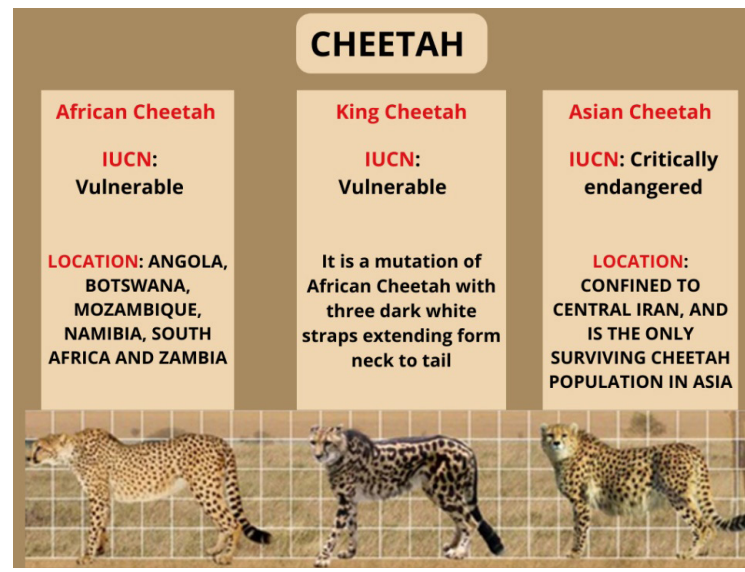
The Wildlife Institute of India (WII) prepared a cheetah reintroduction project some years back.

About Cheetahs

The cheetah is one of the oldest of the big cat species, with ancestors that can be traced back more than five million years to the Miocene era.

The cheetah is also the world's fastest land mammal that lives in Africa and Asia.

Both African and Asian cheetahs are listed in Appendix 1 of CITES and Schedule 2 of WPA.



Kuno National Park

Kuno National Park is a national park in Madhya Pradesh, India, established in 1981 as a wildlife sanctuary.

State government changed the status of the wildlife sanctuary to Kuno National Park in 2018.

It is part of the Khathiar-Gir dry deciduous forests ecoregion.

The vegetation of the protected area includes dry savanna forest and grassland and tropical riverine forest.

The main predators occurring in the protected area are the Indian leopard, jungle cat, sloth bear, dhole, Indian wolf, golden jackal, striped hyena and Bengal fox.

SWACHH SAGAR, SURAKSHIT SAGAR CAMPAIGN

Recently, the Ministry of Earth Sciences launched a Coastal Clean Up Drive under Swachh Sagar Surakshit Sagar Campaign to clean 75 beaches across the country in 75 days.

About

It is the first-of-its-kind and longest-running coastal clean-up campaign in the world with the highest number of people participating in it.

The Campaign will culminate on "International Coastal Clean-up Day" (17th September ٢٠٢٢).

The day aims to increase public awareness about the accumulation and negative impacts of litter on oceans, coastlines, and beaches.

Through this campaign, a mass behavioural change among the masses is intended by raising awareness about how plastic usage is destroying marine life.

A mobile app "Eco Mitram" has been launched to spread awareness about the campaign and also for the common people to voluntary registration for the beach cleaning activity.

Significance of a Clean Ocean

The ocean is a vital source of nourishment, especially for people in the world's poorest nations.

Many depend on fish for their primary source of protein; fisheries and aquaculture support the livelihoods of about 540 million people (8% of the world's population) directly or indirectly.

Overfishing, loss of biodiversity and the possible extinction of species put stress on these limited resources. This could lead to famine, increased poverty and conflicts, including war.

Learning to manage the ocean sustainably is the only path to global prosperity and peace.

FOREVER CHEMICALS

According to a recent study, scientists have found that rainwater from many places across the globe is contaminated with Per- and Polyfluoroalkyl Substances (PFAs).

Further, they are called Forever chemicals because of their tendency to stick around in the atmosphere, rainwater, and soil for long periods of time. PFAs are also listed in the Stockholm Convention.

What are PFAs?

Per- and polyfluoroalkyl substances" (PFAs), also known as "forever chemicals" are man-made compounds used to manufacture nonstick cookware, water-repellent clothing, stain-resistant fabrics, cosmetics, firefighting materials, and many other things that resist grease, water, and oil, according to the US Centre for Disease Control and Prevention (CDC).

During the course of their production and usage, PFAs can move to the land, water, and air. The majority of PFAs do not degrade, therefore they linger in the environment for a long time. If people and animals are exposed to these PFAs on a regular basis, they may develop an accumulation of the chemicals.

How harmful are PFAs?

PFA exposure is linked to a number of health hazards, including lower fertility, effects on children's development, interaction with body hormones, elevated cholesterol levels, and an increased risk of some malignancies, according to the United States Environmental Protection Agency (EPA).

Recent studies have also shown that long-term low-level exposure to specific PFAs can interfere with the ability of people to develop antibodies following vaccination against different diseases.

How can the contaminants in rainwater be removed?

There is no known method that can extract and remove PFAs from the atmosphere itself. However, there are numerous effective and expensive methods to remove them from rainwater collected through various rain harvesting methods.

Utilizing an activated carbon filter system is one way to achieve this. Regular removal and replacement of the activated carbon will be required. Additionally, the outdated, contaminated material needs to be eliminated.

PRADHANMANTRI BHARTIYA JANURVARAK PARIYOJNA (PMBJP)

Why in News?

The Ministry of Chemicals and Fertilizers has decided to brand all fertilizers as "One nation, one fertilizer" under the name Pradhanmantri Bhartiya Januvarak Pariyojna (PMBJP).

The government said a logo using the PMBJP fertilizer scheme will be placed on the side of the fertilizer packs.

About

Under the new "One Nation One Fertiliser" scheme, companies are allowed to display their name, brand, logo and other relevant product information only on **one-third** space of their bags. On the remaining two-thirds space, the "**Bharat**" brand and **Pradhanmantri Bharatiya Jan Urvarak Pariyojana logo** will have to be shown.

The single brand name for UREA, DAP, MOP and NPK etc. would be BHARAT UREA, BHARAT DAP, BHARAT MOP and BHARAT NPK etc. respectively for **all Fertilizer Companies, State Trading Entities (STEs) and Fertilizer Marketing Entities (FMEs).**

This scheme applies to both public & private sector companies.It will bring about uniformity in fertilizer brands across the country.

Government's argument for introducing this scheme

There are some 26 fertilisers (inclusive of urea), on which the government bears subsidy and also effectively decides the MRPs. The government is spending vast sums of money on fertiliser subsidy (the bill is likely to cross Rs 200,000 crore in 2022-23). The government also decides where fertilizer has to be sold.

This is done through the **Fertilizer (Movement) Control Order, 1973.** Under this, the department of fertilizers draws an agreed monthly supply plan on all subsidized fertilizers in consultation with manufacturers and importers.

The Government gives a huge subsidy on these products which is more than maximum retail price, therefore, subsidy schemes will also be mentioned on the bag.

A single brand name will help in the reduction of freight charges due to stopping of crisscross movement of fertilizers, reducing the transit time, and ensuring the availability of fertilizers throughout the year irrespective of brand preferences. It will also stop the diversion of urea for industrial purposes.

Drawbacks of the scheme

It will disincentive fertilizer companies from undertaking marketing and brand promotion activities. They will now be reduced to contract manufacturers and importers for the government.

Currently, in case of any bag or batch of fertilizers not meeting the required standards, the blame is put on the company. But now, that may be passed on fully to the government.

VISHNUGAD PIPALKOTI HYDRO ELECTRIC PROJECT

Why in News?

Recently, the World Bank has agreed to look into environmental damage from the under-construction Vishnugad Pipalkoti Hydro Electric Project (VPHEP) on the Alaknanda River in Uttarakhand.

The panel has considered the request for an enquiry after accepting the Complaints from 83 Local Communities.

About

Vishnugad Pipalkoti Hydro Electric Project (VPHEP)

Vishnugad Pipalkoti Hydro Electric Project to be developed by the THDC India Ltd (THDC), a partially Center-owned enterprise on the **Alaknanda** River in **Uttarakhand**.

The project is primarily funded by the World Bank and was sanctioned in 2011.The hydropower project has been targeted to be completed by 30th June, 2023 at the cost of USD 922 million,when completed, will generate an estimated 1,665 gigawatt-hours.

Complaints

Residents in their complaint to the bank panel have said muck dumping from the dam threatens the **local Lakshmi Narayan Temple**. The locals claimed to have a sacred bond with Laxmi Narayan Temple, which was allegedly established by **Adi Shankaracharya in the 19th century.**

The project has also not taken disasters caused by climate change and extreme weather events into account.

A mid-day cloudburst in Kedarnath in 2013 and the Chamoli disaster of 2021 were also ignored.

Other than ecological damage the project had caused forced resettlement, loss of livelihoods and, in several instances, the amount of compensation offered was inadequate.

Challenges to Hydropower Projects in Himalayas

Glacier retreat and Permafrost Thaw are projected to **decrease the stability of mountain slopes** and increase the number and area of glacier lakes.

With increased instances of cloudbursts, and intense spells of rainfall and avalanches, residents of the region are also placed at increased risk of loss of lives and livelihood.

Hydro Power Projects in Uttarakhand

1. Tehri Stage 2: 1000 MW on Bhagirathi river
2. Tapovan Vishnugadh: 520 MW on Dhauliganga river
3. Vishnugadh Pipalkoti: 444 MW on Alaknanda river
4. Singoli Bhatwari: 99 MW on Mandakini river
5. Phata Bhuyang: 76 MW on Mandakini river
6. Madhyamaheshwar: 15 MW on Madhyamaheshwar Ganga
7. Kaliganga 2: 6 MW on Kaliganga river.

Climate change has driven erratic weather patterns like increased snowfall and rainfall. The thermal profile of ice is increasing, which means that the temperature of ice that used to range from -6 to -20 degree C, is now -2 degree C, making it more susceptible to melting.

Geography of Alaknanda River

It is one of the headstreams of the Ganga. It rises at the confluence and feet of the Satopanth and Bhagirath glaciers in Uttarakhand. It meets the **Bhagirathi River at Devprayag** after which it is called the **Ganga**. Its main tributaries are the **Mandakini, Nandakini, and Pindar rivers.**

The Alaknanda system drains parts of Chamoli, Tehri, and Pauri districts. The Hindu pilgrimage center of Badrinath and the natural spring Tapt Kund lie along the banks of the Alaknanda River

At its origin, **Lake Satopanth** is a triangular lake located at a height of 4402 m and named after the Hindu trinity Lord Brahma, Lord Vishnu, and Lord Shiva.

FALL ARMYWORM

Why in News?

Fall armyworm infestation in maize flares up in North India.

About

Fall armyworm (FAW), the dreaded pest bothering maize growers in recent years, has resurfaced in northern growing areas, triggering concerns for farmers during the current kharif season.

Continuous rains, on the other hand, have kept a check on the infestation in the southern States. In fact, in states such as Gujarat, the pest is also seen infesting the **fodder crops.**

Its scientific name is ***Spodoptera frugiperda*** and also commonly referred as Fall Armyworm (FAW). It is a dangerous transboundary insect with a high potential to spread rapidly due to its natural distribution capacity and opportunities presented by international trade.

FAW represents a real threat to food security and livelihoods of millions of smallholder farmers by spreading across all of sub-Saharan Africa, the Near East and Asia.

Earlier, The Food and Agriculture Organization (FAO)of the United Nations has issued a warning regarding the **'fall armyworm'**, which continues to pose a challenge to the world's food security.

FAO revealed that this worm has spread to 70 countries including India so far, and generally

attacks 80 types of plants, **including maize and rice.** The organization stated that the fall armyworm destroys the entire crop produce.

FAO has launched a Global Action for FAW Control as a response to the international threat posed by the armyworms.

Farmers need significant support to manage FAW sustainably in their cropping systems through **Integrated Pest Management (IPM) activities.**

TRIPLE DIP LA NINA

Why in news?

The Australian Bureau of Meteorology has confirmed the occurrence of La Niña phenomenon for the third consecutive year in the Pacific Ocean.

About

The World Meteorological Organization (WMO) had stated that the oceanic and atmospheric phenomenon would last until at least the end of the year, and for the first time this century, span three consecutive northern hemisphere winters to become a 'triple dip' La Nina.

The WMO predicted that the current La Nina, which began in September 2020, would continue for six months, with a 70 percent chance of lasting till September-November 2022, and 55 percent chance of lasting till December-February 2022/2023.

It is exceptional to have three consecutive years with a la Niña event. Its cooling influence is temporarily slowing the rise in global temperatures – b**ut it will not halt or reverse the long-term warming trend.**

What are El Nino and La Nina?

El Nino and La Nina, which mean 'the boy' and 'the girl' in Spanish, are mutually opposite phenomena, during which an abnormal warming or cooling of sea surface temperatures is observed in the Pacific Ocean along the equator, off the coast of South America.

Together they constitute what is known as the El Niño-Southern Oscillation system, or ENSO for short.

ENSO conditions can alter both temperatures and rainfall globally, due to their strong interference on global atmospheric circulations.

It is a recurring phenomenon and the change in temperature is accompanied by changes in the patterns of upper and lower level winds, sea level pressure, and tropical rainfall across the Pacific Basin.

Normally, El Nino and La Nina occur every four to five years. El Nino is more frequent than La Nina.

How does La Nina impact India's monsoon?

El Niño years in India have witnessed extreme heat and below normal rainfall levels during monsoon, even though El Niño might not be the only factor or even have direct links to them. In 2014, a El Niño year, India received 12 per cent deficient rainfall from June to September.

On the other hand, La Nina years are known to favour the Indian summer monsoon. This year, India has received 740.3 mm of rainfall, quantitatively 7 per cent higher than the seasonal average till August 30. Among the 36 states and union territories, 30 have received rainfall that is categorised as either 'normal,' 'excess' or 'large excess.'

Uttar Pradesh, Manipur (-44 per cent each), and Bihar (-39 per cent), however, remain the worst affected states this season.

The **continuing La Niña is a good sign for the Indian monsoon**. The monsoon rainfall, so far, has been good except in Uttar Pradesh, Bihar and neighboring areas.

But why have La Nina conditions continued for three years?

Climate change could be a driving factor behind such uncommon conditions. El Niño has been associated with rising heatwaves and extreme temperatures, such as in parts of the US, Europe and China recently.

India's Northeast monsoon rainfall remained subdued during past La Niña events, but the 2021 monsoon remains an exception in recent years, Rajeevan had pointed out. In 2021, the southern Indian peninsula experienced its wettest recorded winter monsoon since 1901, receiving a whopping 171 per cent surplus of rainfall between October

and December, IMD data stated.

La Nina conditions and cyclone formation

Intense hurricanes and cyclones have frequently occurred in the Atlantic Ocean and the Bay of Bengal during La Nina years.

Over the North Indian Ocean as well, the chances of an increased number of cyclones are due to multiple contributing factors, including high relative moisture and relatively low wind shear over the Bay of Bengal.

The post-monsoon months, from October to December, are the most active months for cyclonic developments over the North Indian Ocean, with November as the peak for cyclonic activity.

ANANG TAL LAKE

Why in the news?

Recently, the Anang Tal Lake in **South Delhi** has been declared a monument of national importance through a gazette notification by the Ministry of Culture.

About Anang Tal Lake

History

It dates back to 1,060 AD.

The total area of the site was 10.599 acre.

The city was known earlier as DhillikaPuri, as stone inscriptions excavated by Lord Cunningham have revealed.

Anang Tal is situated to the north of Jog Maya temple and approximately 500 metres to the northwest of Qutub Complex.

It was built by the 11th Century Tomar king Anang Pal Tomar.

Significance of the recent decision

Protection by ASI: Once declared to be of national importance, the site would be protected by the ASI and incur restrictions on construction activity in its vicinity.

It is said to have been a place of a general resort but now it is dried up and used for cultivation.

Monuments of National Importance

The Monuments of National Importance are designated by the Archaeological Survey of India (ASI).

The union government of India is authorized to maintain, protect and promote the Monuments of National Importance.

An **Archaeological Sites and Remains Act, 1958** defines an Ancient Monument as follows:

Ancient Monument means any structure, erection or monument, or any tumulus or place of interment, or any cave, rock-sculpture, inscription or monolith which is of historical, archaeological or artistic interest and which has been in existence for not less than 100 years.

It should include the following:

The remains of an ancient monument, the site of an ancient monument, the land on which there are fences or protective covering structures for preserving the monument, land by means of which people can freely access the monument.

Archaeological Survey of India (ASI)

- It is a premier organization under the Ministry of Culture, for the archaeological research and protection of the cultural heritage of the nation.
- It regulates all archaeological activities in the country as per the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, 1958.
- It also regulates the Antiquities and Art Treasure Act, 1972.

ARTIC WARMING AND ITS IMPACT ON INDIA

What is Arctic amplification? What causes it?

Global warming, the long-term heating of the earth's surface, expedited due to anthropogenic forces or human activities since pre-industrial times andhas increased the planet's average temperature by 1.1 degrees Celsius.

While changes are witnessed across the planet, any change in the surface airtemperature and the net radiation balance tend to produce larger changes at the north and south poles.

This phenomenon is known as polar amplification; these changes are more pronounced at the northern latitudes and are known as the Arcticamplification.

Among the many global warming-driven causes for this amplification, the ice-albedo feedback, lapse rate feedback, water vapour feedback and oceanheat transport are the primary causes.

Sea ice and snow have high albedo (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation asopposed to water and land.

In the Arctic's case, global warming is resulting in diminishing sea ice.

As the sea ice melts, the Arctic Ocean will be more capable of absorbing solar radiation, thereby driving the amplification.

The lapse rate or the rate at which the temperature drops with elevation decreases with warming.

Studies show that the ice-albedo feedback and the lapse rate feedback are responsible for 40% and 15% of polar amplification respectively.

What do the previous studies say?

The extent of Arctic amplification is debated, as studies show various rates of amplification against the global rate.

Studies have shown that the Arctic was warming twice the global rate prior to the beginning of the 21st century.

With revised figures, the Inter-governmental Panel on Climate Change released a 'Special Report on the Ocean and Cryosphere in a Changing Climate' in2019, which said that the "Arctic surface air temperature has likely increased by more than double the global average over the last two decades."

In May 2021, the Arctic Monitoring and Assessment Programme (AMAP) warned that the Arctic has warmed three times quicker than the planet, and thechance of the sea ice completely disappearing in summers is 10 times greater, if the planet is warmer by two degree Celsius above the pre-industriallevels.

The report also said that the average annual temperature in the region increased by 3.1 degree Celsius compared to the 1 degree Celsius for the planet.

However, recent studies have shown that the mean Arctic amplification saw steep changes in 1986 and 1999, when the ratio reached 4.0, implying fourtimes faster heating than the rest of the planet.

This does not necessarily mean that the previous studies were wrong, but the newer ones look at shorter time periods (50 years in this case) due to fast paced changes.

What are the consequences of Arctic warming?

The causes and consequences of Arctic amplification are cyclical — what might be a cause can be a consequence too.

The Greenland ice sheet is melting at an alarming rate, and the rate of accumulation of sea ice has been remarkably low since 2000, marked by young andthinner ice replacing the old and thicker ice sheets.

The Greenland ice sheet saw a sharp spike in the rate and extent of melting between July 15-17 this year.

The unusual summer temperatures resulted in a melt of 6 billion tonnes of ice sheet per day, amounting to a total of 18 billion tonnes in a span of threedays, enough to cover West Virginia in a foot of water.

Greenlandic ice sheet holds the second largest amount of ice, after Antarctica, and therefore it is crucial for maintaining the sea level.

In 2019, this was the single biggest cause for the rise in the sea level, about 1.5 metres.

If the sheet melts completely, the sea level would rise by seven metres, capable of subsuming island countries and major coastal cities.

The warming of the Arctic Ocean and the seas in the region, the acidification of water, changes in the salinity levels, is impacting the biodiversity,including the marine species and the dependent species.

The warming is also increasing the incidence of rainfall which is affecting the availability and accessibility of lichens to the reindeer.

The Arctic amplification is causing widespread starvation and death among the Arctic fauna.

The permafrost in the Arctic is thawing and in turn releasing carbon and methane which are among the major greenhouse gases responsible for globalwarming.

Experts fear that the thaw and the melt will also release the long-dormant bacteria and viruses that were trapped in the permafrost and can potentiallygive rise to diseases.

The best-known example of this is the permafrost thaw leading to an anthrax outbreak in Siberia in 2016, where nearly 2,00,000 reindeer succumbed.

What is the impact on India?

In recent years, scientists have pondered over the impact the changing Arctic can have on the monsoons in the subcontinent?

The link between the two is growing in importance due to the extreme weather events the country faces, and the heavy reliance on rainfall for water andfood security.

A study titled 'A possible relation between Arctic Sea ice and late season Indian Summer Monsoon Rainfall extremes' published in 2021 by a group of

Indian and Norwegian scientists found that the reduced sea ice in the Barents-Kara Sea region can lead to extreme rainfall events in the latter half of themonsoons — in September and October.

The changes in the atmospheric circulation due to diminishing sea ice combined with the warm temperatures in the Arabian Sea contribute to enhancedmoisture and drive extreme rainfall events.

In 2014, India deployed IndARC, India's first moored-underwater observatory in the Kongsfjorden fjord, Svalbard, to monitor the impact of the changes inthe Arctic Ocean on the tropical processes such as the monsoons.

According to the World Meteorological Organization's report, 'State of Global Climate in 2021', sea level along the Indian coast is rising faster than theglobal average rate.

One of the primary reasons for this rise is the melting of sea ice in the polar regions, especially the Arctic.

The Arctic amplification furthers the idea that "what happens in the Arctic does not remain in the Arctic" and can substantially affect tropical processesfar south.

'GETTING INDIA TO NET ZERO' REPORT

Context

According to the report by Getting India to Net Zero, India needs a massive USD 10.1 trillion investment from now on if India is to achieve its net-zero emissions target by 2070.

Getting India to Net Zero Report

The report is prepared by the High-Level Policy Commission on Getting Asia to Net Zero.

The High-Level Policy Commission on Getting Asia to Net Zero was constituted by Asia Society Policy Institute, a New York-based think tank.

The report contains new research and modelling as well as recommendations about the policies necessary for the clean energy transition.

It also contains insights about how much India could benefit from achieving the Net Zero status.This is the first report of the commission.

Key Findings

Investment

Amount of investment needed for making India net zero by 2070. Net zero emissions by 2070 would require an economy-wide investment of $10.1 trillion from now. The investment required will be $13.5 trillion if the target is to be met by 2050.

Impact on Indian economy

Achieving net zero carbon emissions by 2070 could boost India's economy by as much as 4.7% above the projected baseline growth in GDP terms by 2036. It could also create as many as 15 million new jobs by 2047.

By reaching net zero by 2050, India could boost annual GDP by as much as 7.3% and create nearly 20 million additional jobs by 2032.Positive economic impacts are driven in part by an improved trade balance of $236 billion due to reduced demand for fossil fuels.

Additional finance would free up existing resources to tackle negative impacts of climate policies such as carbon taxes, and to help reskill and upskill workers.India's energy pathway received appreciation

The report appreciated the fact that India is not locked in an energy intensive pathway of growth like China. It further said that India needs to embrace a low carbon growth trajectory. It also highlighted the fact that global events have potential to shape the path of energy transition.

The Ukraine war has shown that developed countries such as Germany and Japan are reverting back to fossil use.It is also based on what developed countries are doing. Significant economic as well as technological resources are needed for India to transition to a clean economy.

Recommendations

End new coal as soon as possible by 2023 and

Start transitioning from unabated coal power by 2040.

India's Panchamrit pledge at COP26:

Reach 500 GW of Non-fossil energy capacity by 2030.

50 per cent of its energy requirements from renewable energy by 2030.

Reduction of total projected carbon emissions by one billion tonnes from now to 2030.

Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels.

Achieving the target of net zero emissions by 2070.

Way Forward

India should work on areas like investment in infrastructure, capacity building and better grid integration in the near and immediate future.

Service companies can easily reduce their emissions by expanding the use of renewable energy, and working with supply chain partners. They

can become carbon neutral by sourcing 50% of their electricity from renewable sources.

For coal-powered companies, this 'energy-transition movement' offers an opportunity to invest in climate technologies and expand the use of renewable energy sources.

EVs will contribute to improving the overall energy security situation as the country imports over 80% of its overall crude oil requirements, amounting to approximately $100 billion.

To mitigate the charging issues of EVs, charging infrastructures that draw power from local electricity supply can be set up at private residences, public utilities such as petrol and CNG pumps, and in the parking facilities of commercial establishments like malls, railway stations, and bus depots.

RARE EARTH METALS

Why in news

The United States Army plans to fund the construction of a Rare Earths processing facility to secure the domestic supply of minerals that are used to makemilitary weapons and electronics, Reuters reported.

This will be the first financial investment by the US military into commercial-scale Rare Earths production since the Manhattan Project to build the firstatomic bomb during World War II, the report said.

The decision comes after China threatened to stop exporting Rare Earth materials to the US amid the ongoing trade war between the countries.

A commentary published in Chinese state media in May 2019 said: "Waging a trade war against China, the United States risks losing the supply ofmaterials that are vital to sustaining its technological strength."

What are Rare Earths?

Rare Earth Elements or Rare Earth Metals are a set of 17 chemical elements in the periodic table — the 15 lanthanides, plus scandium and yttrium, whichtend to occur in the same ore deposits as the lanthanides, and have similar chemical properties.

The 17 Rare Earths are cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu),neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).

Despite their classification, most of these elements are not really "rare".

One of the Rare Earths, promethium, is radioactive.

What are Rare Earths used for?

These elements are important in technologies of consumer electronics, computers and networks, communications, clean energy, advancedtransportation, healthcare, environmental mitigation, and national defence, among others.

Scandium is used in televisions and fluorescent lamps, and yttrium is used in drugs to treat rheumatoid arthritis and cancer.

Rare Earth elements are used in space shuttle components, jet engine turbines, and drones. Cerium, the most abundant Rare Earth element, is essential toNASA's Space Shuttle Programme.

According to the Rare Earth Technology Alliance (RETA), the estimated size of the Rare Earth sector is between $10 billion and $15 billion.

About 100,000-110,000 tonnes of Rare Earth elements are produced annually around the world.

How and why does China dominate the sector?

In China, the mining of Rare Earths began in the 1950s, but it remained a cottage industry until the 1970s, when the chemist Xu Guangxian found a way toseparate the Rare

Earth elements.

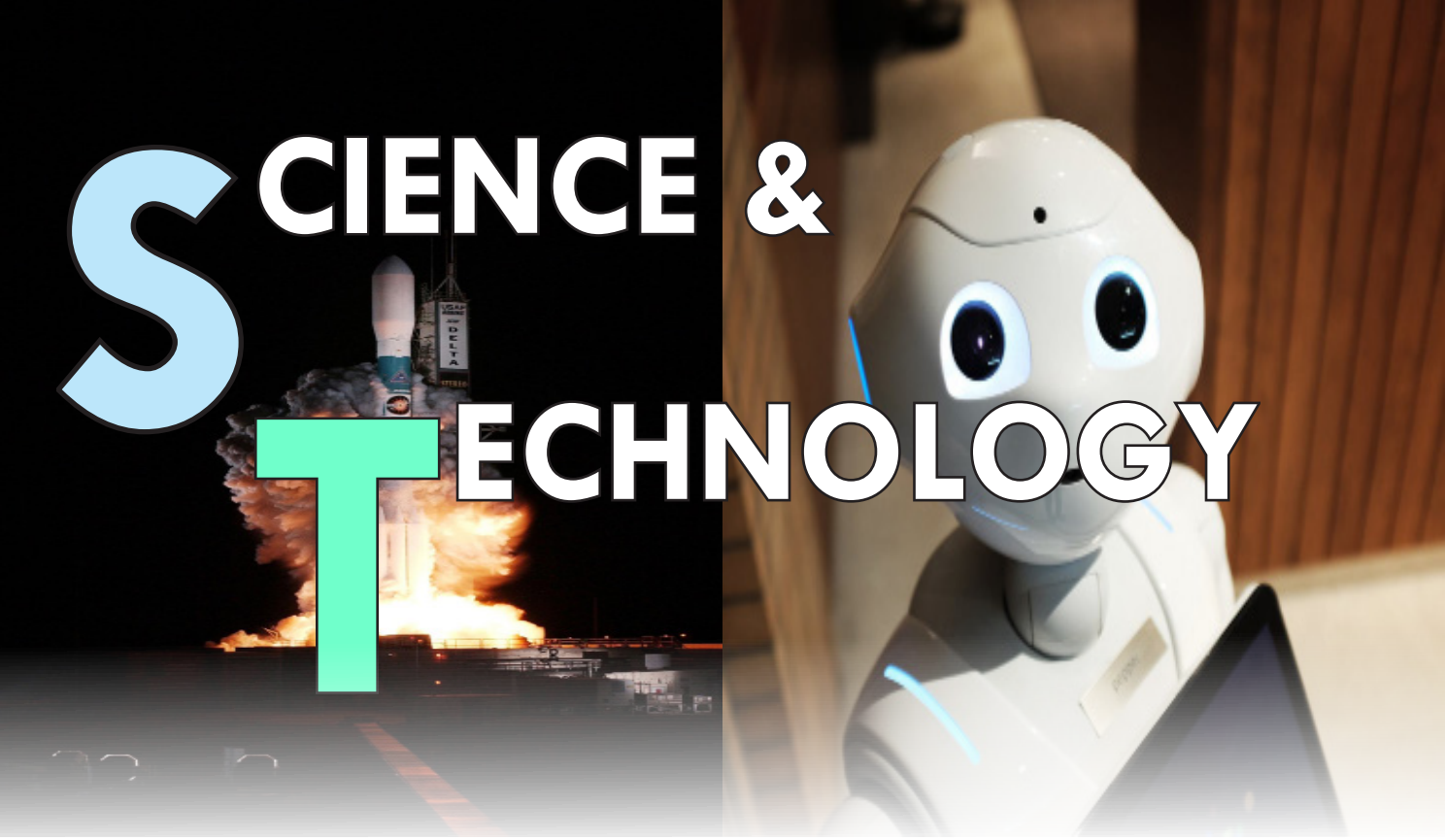
According to the Australian Strategic Policy Institute, after the Cultural Revolution in China ended, the country focussed on exploiting its naturalresources.

In 1992, on a visit to the Rare Earths district of Baotou in Inner Mongolia.The Middle East has its oil, China has Rare Earths; China's Rare Earths depositsaccount for 80% of identified global reserves, you can compare the status of these reserves to that of oil in the Middle East.

It is of extremely important strategic significance; we must be sure to handle the Rare Earth issue properly and make the fullest use of our country'sadvantage in Rare Earth resources.

According to research by the United States Studies Centre at the University of Sydney, since 2010 when China curbed shipments of Rare Earths to Japan,the US, and Europe, production units have come up in Australia, and the US along with smaller units in Asia, Africa, and Latin America.

Even so, the dominant share of processed Rare Earths lies with China.



SCIENCE & TECHNOLOGY

What's Inside?

ALPHAFOLD

Why in news?

DeepMind, a company based in London and owned by Google announced that it had predicted the three-dimensional structures of more than 200 million proteins using AlphaFold.

About

AlphaFold is an **AI-based protein structure prediction tool**. It is based on a computer system called **deep neural network.**

It uses processes based on **"training, learning, retraining and relearning**". By using this method, AlphaFold has now predicted the structures of the entire 214 million unique protein sequences deposited in the Universal Protein Resource(UniProt) database.

Mechanism:

The first step uses the available structures of 1,70,000 proteins in the **Protein Data Bank (PDB)** to train the computer model.

Then, it uses the results of that training to learn the structural predictions of proteins not in the PDB.

Then, it uses the high-accuracy predictions from the first step to retrain and relearn to gain higher accuracy of the earlier predictions.

By using this method, AlphaFold has now predicted the structures of the entire 214 million unique protein sequences deposited in the **Universal Protein Resource (UniProt) database.**

IMPLICATIONS OF THIS DEVELOPMENT -

Proteins are the business ends of biology, meaning proteins carry out all the functions inside a living cell. Therefore, **knowing protein structure and function** is essential to **understanding human diseases**.

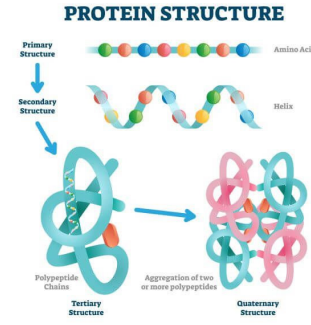
Scientists predict protein structures using x-ray crystallography, nuclear magnetic resonance spectroscopy, or cryogenic electron microscopy.

PROTEINS

The building blocks of proteins are amino acids, which are small organic molecules that consist of an alpha (central) carbon atom linked to an amino group, a carboxyl group, a hydrogen atom, and a variable component called a side chain .

Within a protein, multiple amino acids are linked together by peptide bonds, thereby forming a long chain. Peptide bonds are formed by a biochemical reaction that extracts a water molecule as it joins the amino group of one amino acid to the carboxyl group of a neighboring amino acid.

The linear sequence of amino acids within a protein is considered the primary structure of the protein.



These **techniques are not just time-consuming,** they often take years and are based mainly on trial-and-error methods.

Therefore, the development of AlphaFold changes all of that. It is **a watershed movement** in science and structural biology in particular.

OTHER TOOLS

AlphaFold is neither flawless nor the only AI-based protein structure prediction tool.

RoseTTaFold, developed at the University of Washington in Seattle, U.S., is another tool. Although less accurate than AlphaFold, it can predict the structure of protein complexes.

PAXLOVID REBOUND

Why in news?

After being diagnosed with Covid-19 last month, President Joe Biden recently tested negative for the coronavirus, only to test positive again a few days later. Biden had taken the antiviral medication Paxlovid, which has been associated with some patients testing positive again for the virus after completing treatment.This phenomenon is known as Paxlovid rebound

About-

"Paxlovid rebound" — the phenomenon of patients who have been administered the antiviral drug Paxlovid, experiencing a return of the infection days after testing negative.

Paxlovid

Paxlovid is an **antiviral drug** developed by Pfizer, which consists of **nirmatrelvir tablets and ritonavir tablets**, co-packaged for oral use.

Of the two components of Paxlovid, nirmatrelvir inhibits a **viral enzyme called protease** that is necessary for the virus to replicate itself inside the host cell.

And the second component, ritonavir, slows down the breakdown of nirmatrelvir in order to help it remain in the body for longer at higher concentrations.

A drug like nirmatrelvir is considered to have an advantage over vaccines because it attacks a vulnerability in the virus that does not mutate like spike proteins — which vaccines target — do.

As a result, the medication is seen to be effective against all variants. This was seen as especially important because the Omicron wave had shown that in a very large number of cases, vaccines were unable to prevent infection, even though they did prevent serious illness and deaths. (This pattern was seen in India as well.)

The European Medicines Agency (EMA) issued advice that Paxlovid can be used to treat adults with Covid-19 who do not require supplemental oxygen and who are at increased risk of progressing to severe disease.

PAXLOVID IN INDIA

Despite being approved in India, physicians are not prescribing Paxlovid widely. Most cases of Covid-19 in India have been mild, and there has been no push from the government for the use of the medication so far.

ETHYLENE OXIDE CONTAMINATION

Why in news?

The United Kingdom has done away with its mandatory requirement to test imports of Indian organic products for ethylene oxide (ETO) contamination since July 1. the reversal of the mandatory testing for ETO contamination of Indian organic agriculture products by the UK is "a great recognition" for the revamping of India's Organic Agriculture Certification system.

About - Ethylene Oxide -

Ethylene oxide is a carcinogenic, mutagenic, irritating, and anaesthetic gas, which is used to control insects as a fumigant

Ethylene oxide is generated from natural sources like water - logged soil, manure, and sewage sludge, but emissions from these natural sources are expected to be negligible compared to manmade chemical.

Ethylene oxide is commonly used to prevent microbial contaminants such as Salmonella and E. coli, reduce bacterial loads, yeast and mold, coliforms and other pathogens. .Ethylene oxide is also used as a pesticide to control pests. It is employed instead of high temperature processes that may damage certain products such as herbs, spices and seeds

Historically, ethylene oxide was used as a fumigant pesticide to treat foodstuffs. Because of its volatility, ethylene oxide residue in food post-treatment can fully dissipate with time. However, the use of ethylene oxide on foods is being phased out worldwide, due to health concerns associated with residues that may remain in foods until they are consumed. Safer alternatives, such as food irradiation or steam treatment, are increasingly being used to replace fumigation with ethylene oxide.

Agricultural and Processed Food Products Export Development Authority

The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act passed by the Parliament. The Authority replaced the Processed Food Export Promotion Council (PFEPC).

The APEDA, Ministry of Commerce & Industries, Government of India is implementing the **National Programme for Organic Production (NPOP)**. The programme involves the **accreditation of Certification Bodies**, standards for organic production, promotion of organic farming and marketing etc.

The NPOP standards for production and accreditation system have been **recognized by European Commission and Switzerland** for unprocessed plant products as equivalent to their country standards. With these recognitions, Indian organic products duly certified by the accredited certification bodies of India are accepted by the importing countries. APEDA is also in the process of negotiation with South Korea, Taiwan, Canada, Japan etc.

APEDA functions as the Secretariat to the **National Accreditation Board (NAB)** for implementation of accreditation of the Certification Bodies under National Programme for Organic Production (NPOP) for organic exports.

SMALL SATELLITE LAUNCH VEHICLE (SSLV)

Recently, Indian Space Research Organisation (ISRO) launched the first flight of the Small Satellite Launch Vehicle (SSLV), carrying an Earth observation satellite EOS-02 and co-passenger students' satellite AzaadiSAT.

The SSLV is a small-lift launch vehicle being developed by the ISRO with payload capacity to deliver 600 kg to Low Earth Orbit (500 km) or 300 kg to Sun-synchronous Orbit (500 km). It would help launching small satellites, with the capability to support multiple orbital drop-offs. It will be a four stage launching vehicle. The first three stages will use Hydroxyl-terminated polybutadiene (HTPB) based solid propellant, with a fourth terminal stage being a Velocity-Trimming Module (VTM).

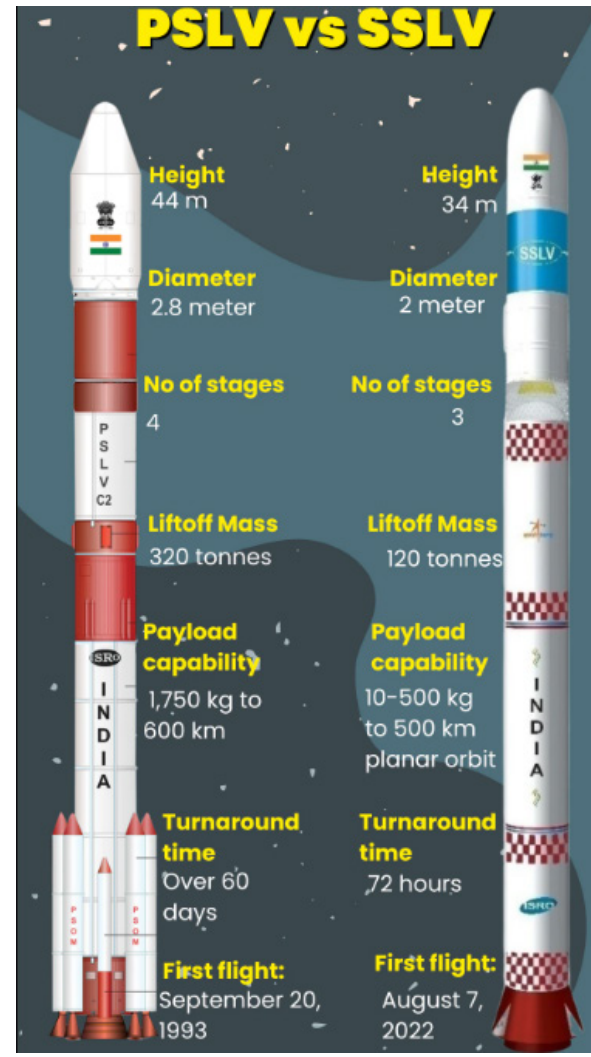
In future a dedicated launch pad in Sriharikota called Small Satellite Launch Complex (SSLC) will be set up. A new spaceport, under development, near Kulasekharapatnam in Tamil Nadu will handle SSLV launches when complete. After entering the operational phase, the vehicle's production and launch operations will be done by a consortium of Indian firms along with NewSpace India Limited (NSIL).

Significance of SSLV

SSLV is perfectly suited for launching multiple microsatellites at a time and supports multiple orbital drop-offs. The development and manufacture of the SSLV are expected to create greater synergy between the space sector and private Indian industries – a key aim of the space ministry.

SSLV vs. PSLV

The SSLV was developed with the aim of launching small satellites commercially at drastically reduced price and higher launch rate as compared to Polar SLV (PSLV). The projected high launch rate relies on largely autonomous launch operation and on overall simple logistics. To compare, a PSLV launch involves 600 officials while SSLV launch operations would be managed by a small team of about six people. The launch readiness period of the SSLV is expected to be less than a week instead of months. The SSLV can carry satellites weighing up to 500 kg to a low earth orbit while the tried and tested PSLV can launch satellites weighing in the range of 1000 kg.



PEVATRONS

A recent study using 12 years of data from NASA's Fermi telescope helped scientists understand PeVatrons, or the source of a kind of extremely high-energy cosmic particles.

Cosmic rays are believed to be of Galactic origin, but the sources where they are produced are still unknown. Sources capable of accelerating particles up to at least PeV energies are called PeVatrons.

Streams of particles called cosmic rays travel at breakneck speeds around our galaxy and they also strike our planet's atmosphere. They typically consist of protons but sometimes also include atomic nuclei and electrons. They all carry an electric charge, this means that their paths deviate and scramble as they go through our galaxy's magnetic field.

This means that we can no longer tell which direction they originally came from, effectively masking their birthplace. But when the particles that are part of cosmic rays collide with the gas near supernova remnants, they produce gamma rays; some of the highest-energy forms of radiation that exist.

These particles get trapped by the chaotic magnetic fields near supernova remnants. They

pass through the supernova's shock wave multiple times and each time they do, they gain speed and energy. Eventually, they can no longer be held by the supernova remnant and will careen off into deep space. These particles are boosted to 10 times the energy that the Large Hadron Collider, the most powerful man-made particle accelerator, can generate.

Scientists have identified a few locations that could be PeVatrons, generating these high-energy extreme cosmic particles. Many of these candidates are naturally supernova remnants.

ARTEMIS 1

NASA's Artemis mission is touted as the next generation of lunar exploration, and is named after the twin sister of Apollo from Greek mythology. Artemis is also the goddess of the moon.

Artemis I is the first of NASA's deep space exploration systems. It is an uncrewed space mission where the spacecraft will launch on SLS — the most powerful rocket in the world — and travel 2,80,000 miles from the earth for over four to six weeks during the course of the mission.

The Orion spacecraft is going to remain in space without docking to a space station, longer than any ship for astronauts has ever done before. The SLS rocket has been designed for space missions beyond the low-earth orbit and can carry crew or cargo to the moon and beyond.

Other space agencies are also involved in the Artemis programme. The Canadian Space Agency has committed to providing advanced robotics for the gateway. The European Space Agency will provide the International Habitat and the ESPRIT module, which will deliver additional communications capabilities among other things. The Japan Aerospace Exploration Agency plans to contribute habitation components and logistics resupply.

Key objectives of the mission:

With the Artemis Mission, NASA aims to land humans on the moon by 2024, and it also plans to land the first woman and first person of colour on the moon. With this mission, NASA aims to contribute to scientific discovery and economic benefits and inspire a new generation of explorers.

NASA will establish an Artemis Base Camp on the surface and a gateway in the lunar orbit to aid exploration by robots and astronauts. The gateway is a critical component of NASA's sustainable lunar operations and will serve as a multi-purpose outpost orbiting the moon.

NASA's BioSentinel

While NASA's Artemis I mission is an uncrewed mission, there will be some living passengers on board. BioSentinel, a shoebox-sized CubeSat, will carry microorganisms—in the form of yeast—into deep space.

NASA's BioSentinel will carry microorganisms to deep space to help scientists better understand the effects of deep space radiation on biological lifeforms. The primary objective of BioSentinel is to monitor the vital signs of yeast to see how the microorganism fare when exposed to the radiation of deep space.

Yeast cells have biological mechanisms that are like human cells, including DNA damage and repair. Due to this, scrutinising yeast in space will help us better understand the risks of space radiation to humans as the space agency plans missions to the Moon and beyond. For this, BioSentinel will study yeast cell growth and metabolic activity after exposure to a high-radiation environment.

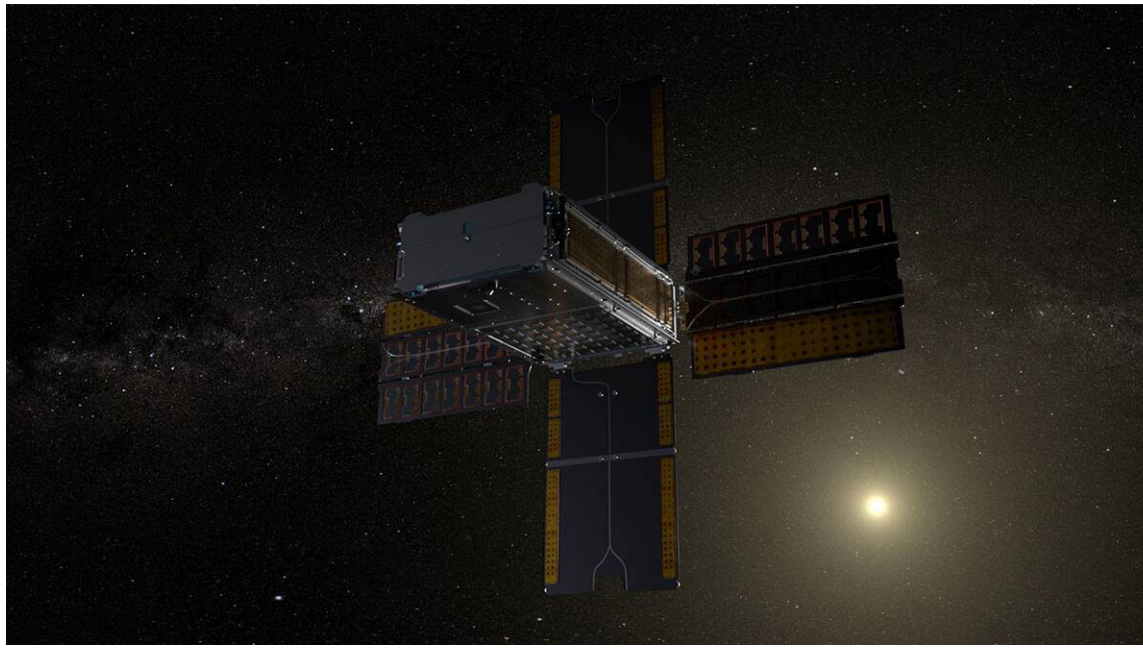
A key component of BioSentinel's mission is a novel biosensor. NASA refers to it as a "miniature biotechnology laboratory" that is designed to measure how living yeast cells respond to long-term space radiation exposure. BioSentinel is just one of the Artemis I mission's ten secondary payloads that will hitch a ride to deep space. All these satellites are mounted in the Orion stage adapter on the Space Launch System (SLS) rocket.

ISRO's Moon Exploration Efforts:

Chandrayaan 1: The Chandrayaan project began in 2007 with an agreement between India's space agency ISRO and Russia's ROSCOSMOS for mutual cooperation. Findings: Confirmed presence of lunar water; Evidence of lunar caves formed by an ancient lunar lava flow; Past tectonic activity was found on the lunar surface.

Chandrayaan-2 is India's second mission to the moon and comprises a fully indigenous Orbiter, Lander (Vikram) and Rover (Pragyan). The Rover Pragyan is housed inside Vikram lander.

The Indian Space Research Organisation (ISRO) recently announced India's third lunar mission ***Chandrayaan-3***, which will comprise a lander and a rover.



TOMATO FLU

Tomato flu or tomato fever is characterised by fever, joint pain, and red, tomato-like rashes usually seen in children below the age of five years.

This is accompanied by other symptoms of viral fevers such as diarrhoea, dehydration, nausea and vomiting, and fatigue.

This was thought to be an after effect of dengue and chikungunya that is commonly seen in Kerala.

However, researchers now believe that it is HFMD caused by enteroviruses like Coxsackievirus A-6 and A-16.

Tomato flu could be an after-effect of chikungunya or dengue fever in children rather than a viral infection.

It could also be a new variant of the viral hand, foot, and mouth disease, a common infectious disease targeting mostly children aged 1–5 years and immunocompromised adults," the recent correspondence in The Lancet read.

There is no specific treatment or vaccine available for the disease. Those with the infection are treated symptomatically, such as prescription of paracetamol for fever.

As it happens mainly in children, the Centre's advisory to states that was issued on Tuesday focuses on preventions in these age groups.

As per the advisory, anyone suspected to have the infection should remain in isolation for five to seven days after the onset of the symptoms.

It states that children must be educated about the infection and asked not to hug or touch other children with fever or rashes.

The children should be encouraged to maintain hygiene, stop thumb or finger sucking, and use a handkerchief for a running nose, the advisory states.

If a child develops symptoms, they should be isolated, their utensils, clothing, and bedding must be regularly sanitised, they must be kept hydrated, and the blisters must be cleaned using warm water, according to the advisory.

It also states that testing should be conducted to take measures if there is an outbreak.

Any respiratory, faecal, or cerebrospinal fluid samples (in cases with encephalitis or inflammation of the brain) have to be collected within 48 hours of illness.

The biopsy of the lesions or skin scraping samples does not have such time limits.

WEST NILE VIRUS (WNV)

Why in News?

The New York City Health Department announced that the West Nile virus had been detected in two people and a "record number" of infected mosquitoes throughout the city.

About

It is **a member of the flavivirus genus.**

It is **responsible for causing St. Louis encephalitis, Japanese encephalitis, and yellow fever.**

It is **a single-stranded RNA virus.**

It was first **isolated in a woman in the West Nile district of Uganda in 1937.**

Older people, children and those with weakened immune systems are most at risk.

It **spreads from birds to humans** with the bite of an infected **Culex mosquito.**

Global Prevalence

Africa, Europe, the Middle East, North America, and West Asia are the regions where the virus is commonly found. Usually, WNV infections peak during the period when mosquito vectors are most active and the ambient temperature is high enough for virus multiplication for most of the countries.

Transmission

Birds act as the reservoir host of the virus.

Principal vector for transmission is the culex species of mosquitoes.

Infected mosquitoes transmit WNV between and among humans and animals, including birds.

When a mosquito feeds on infected birds, they become infected.

The virus circulates in the blood of those infected mosquitoes for a few days, eventually getting into the mosquito's salivary glands.

The virus may get injected into humans and animals during later blood meals (when mosquito bites). Therein, WNV can multiply and possibly cause illness.

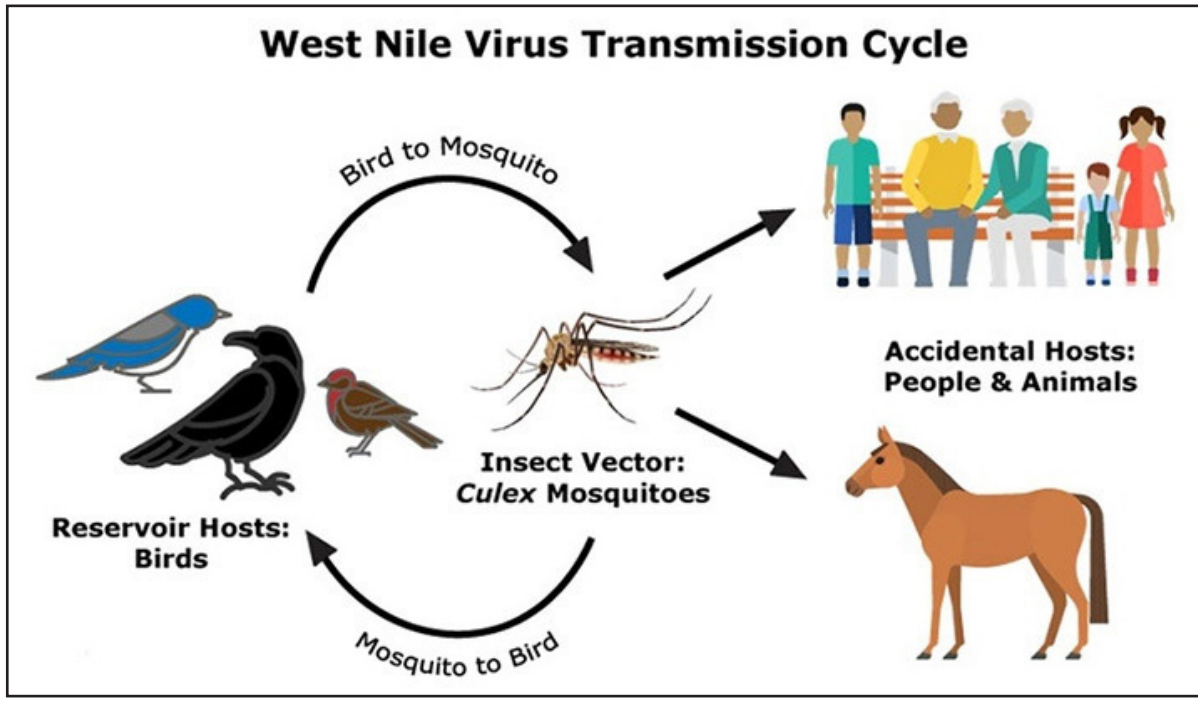
WNV can also get transmitted from an infected mother to her child through blood transfusion or via exposure to the virus in laboratories.

Generally, the incubation period for WNV disease is 2-6 days. However, this may range from 2-14 days, and can also be several weeks in people whose immunity is compromised.

No instance of transmission by contact with infected humans or animals has been reported.

It **does not spread "through eating infected animals, including birds.**

According to the **World Health Organization (WHO), no human-to-human transmission of WNV through casual contact has been reported till date.**



3D-PRINTED ARTIFICIAL CORNEA

Why in News?

Researchers from Hyderabad have 3D-printed an artificial cornea and transplanted it into a rabbit's eye.

About

A team of clinicians and scientists from the LV Prasad Eye Institute (LVPEI), Hyderabad, Indian Institute of Technology (IIT) Hyderabad, and Centre for Cellular and Molecular Biology (CCMB), have collaborated to develop the 3D-printed cornea from the human donor corneal tissue which would have otherwise been discarded for not meeting optical standards for clinical transportation.

The printed corneas need to undergo further clinical testing and development before they can be used in patients, which could take several years.

Corneal damage is the leading cause of blindness worldwide with more than 1.5 million new cases of corneal blindness reported every year.

Corneal transplantation is the current standard of care for cases with severe disease and vision loss. The made-in-India product could offer an alternative solution to corneal blindness.

With recent advancements in regenerative medicine and tissue engineering, the researchers used decellularized corneal tissue matrix and stem cells derived from the human eye to develop a unique biomimetic hydrogel that was used as the background material for the 3D-printed cornea. Each donor cornea can aid in the preparation of three 3D-printed corneas.

Because the 3D-printed cornea is composed of materials deriving from human corneal tissue, it is biocompatible, natural, and free of animal residues. In addition, since the tissue used for this technology is derived from donor corneas that do

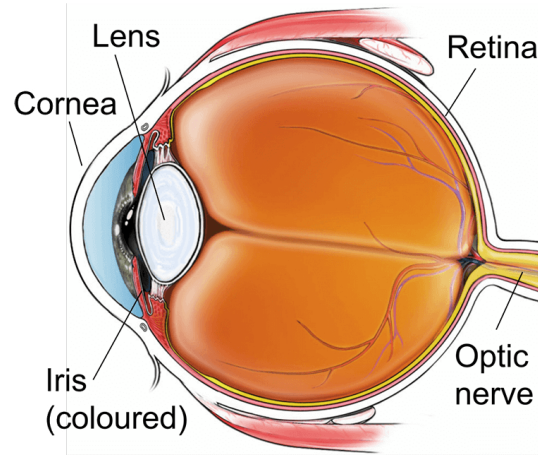
not meet the optical standards for clinical transplantation, this method also finds unique use for the donated corneas that would otherwise be discarded.

This can be a ground-breaking and disruptive innovation in treating diseases like **corneal scarring** (where the cornea becomes opaque) or **Keratoconus** (where the cornea gradually becomes thin with time).

It is a made-in-India product by an Indian clinician-scientist team and the first 3-D printed human cornea that is optically and physically suitable for transplantation.

Cornea

The transparent part of the eye that covers the iris and the pupil and allows light to enter the inside.



AFRICAN SWINE FEVER

Why in News?

Recently, African Swine Fever has been confirmed for the first time, at a private pig farm in in Kerala, after more than 15 pigs on the farm had died due to the disease in the last ten days.

About

It is a highly contagious and fatal animal disease that infects and leads to an acute form of hemorrhagic fever in domestic and wild pigs.

It was **first detected in Africa** in the 1920s.Historically, outbreaks have been reported in **Africa and parts of Europe, South America,** and the **Caribbean.** However, since 2007, the disease has been reported in multiple countries across **Africa, Asia and Europe,** in both **domestic and wild pigs.**

The mortality is close to 95% - 100% and since the fever has no cure, the only way to stop its spread is by culling the animals.ASF is not a threat to human beings since it only spreads from animals to other animals.ASF is a disease listed in the World Organisation for Animal Health (OIE)'s Terrestrial Animal Health Code.

Clinical Signs

The clinical signs of ASF may occur in **chronic, sub-acute or acute form**.

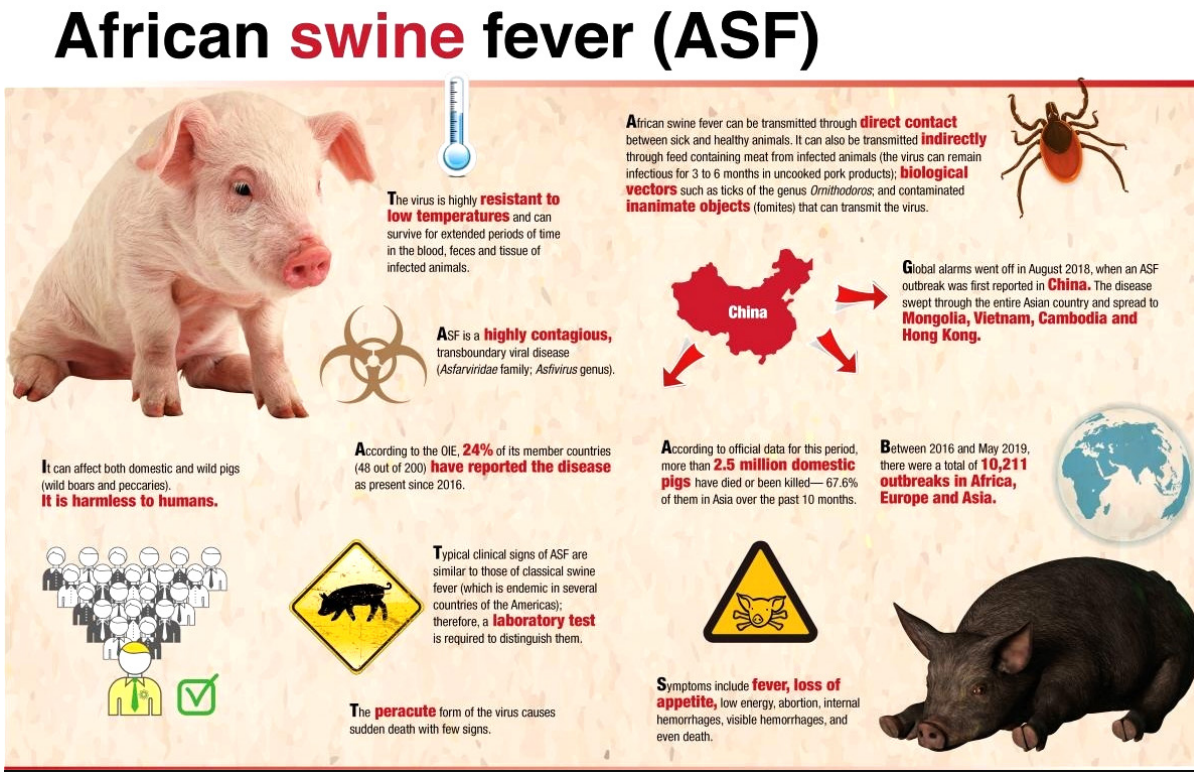
In the acute form pigs develop a **high temperature** (40.5 degrees C or 105 degrees F), then **become dull and go off their food.**

Other symptoms can vary but will include some or all of the following:

- Vomiting
- Diarrhoea (sometimes bloody)
- Reddening or darkening of the skin, particularly ears and snout
- Gummed up eyes
- Laboured breathing and coughing
- Abortion, still births and weak litters
- Weakness and unwillingness to stand

Transmission:

Direct contact with infected pigs, faeces or body fluids.Indirect contact via fomites such as equipment, vehicles or people who work with pigs between pig farms with ineffective biosecurity.Pigs eating infected pig meat or meat products.Biological vectors - ticks of the species Ornithodoros.



LANGYA VIRUS

A new zoonotic virus named Langya Henipavirus or the LayV has been discovered in China.

About

Langya is a part of a genus of viruses called henipaviruses.

Henipaviruses belong to the family of paramyxoviruses. They can cause severe illness in animals and humans and are classified as biosafety level 4 (BSL4) pathogens with case fatality rates between 40-75%.

The types of Henipaviruses that had been identified till now include Hendra, Nipah, Cedar, Mojiang and the Ghanaian bat virus.

As of now, there are no licensed drugs or vaccines meant for humans;and there is no strong evidence for human-to-human transmissions.

Common symptoms:Fever, Fatigue, cough, muscle aches and pains, nausea, headache and vomiting.

NUCLEAR MATRIX

Why in News?

Using a novel method, a group of researchers from CSIR-Centre for Cellular and Molecular Biology, Hyderabad (CCMB) and Tata Institute for Genetics and Society, Bengaluru (TIGS), have established a way of studying the nuclear matrix of the fruit fly (Drosophila melanogaster) without

removing the nucleus from the embryo.

About

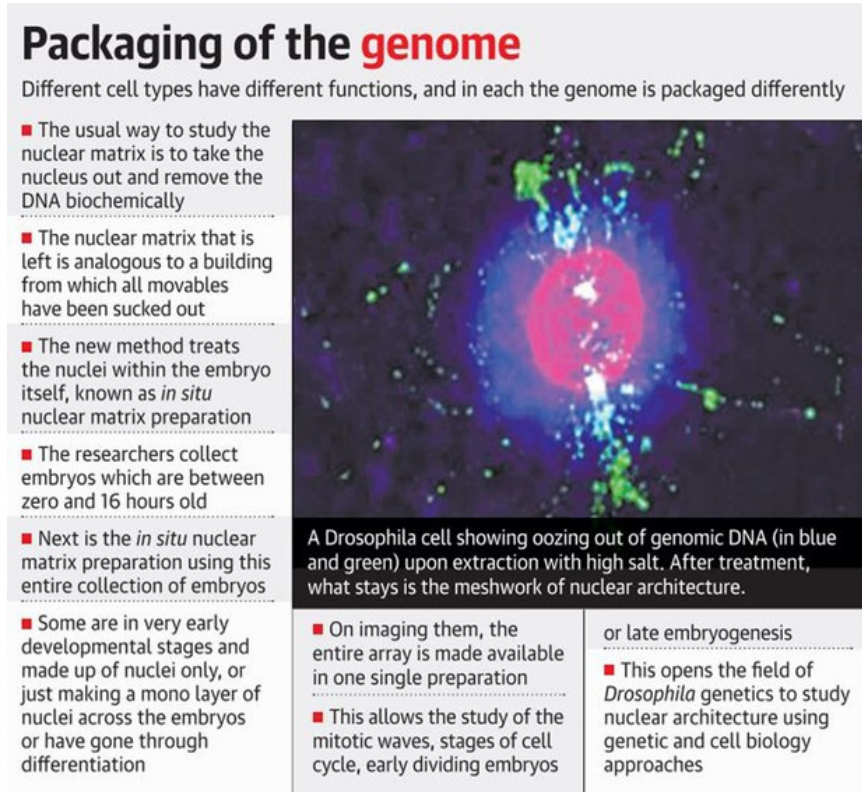
The nuclear matrix is like scaffolding (support).

Every cell that makes up an organism contains a copy of its genome.

This genome is packaged in special ways with the help of a structure known as the nuclear matrix.

The nuclear matrix gives an organization and architecture to the nucleus.

The genome is in the nucleus, embedded and protected by the jelly-like nuclear matrix.



This is a dynamic material providing access for the regulation of different genes in different cells.

Studying the nuclear matrix is, therefore, very important to get a better picture of how precisely development progresses every time a new individual is born.

The new method treats the nuclei within the embryo itself, known as in situ nuclear matrix.

NATIONAL FORENSIC SCIENCE UNIVERSITY

Why in News?

Recently, the Union Home and Cooperation Minister addressed the First convocation of National Forensic Science University (NFSU).

About

In September 2020, Government of India, had passed two Acts

The National Forensic Science University (NFSU) Act 2020 - NFSU was created at Gandhinagar in Gujarat State.

Rashtriya Raksha University (RRU) Act 2020 - RRU has been created and established at Lavad, Dahegam, Gandhinagar, Gujarat State. The mandate of Rashtriya Raksha University is to promote and provide global standards of learning and research in policing, law enforcement, security, cyber security, artificial intelligence, and risk management.

Vision in NFSU

To fulfill the acute shortage of Forensic Experts in the Country and the World.

To make the World a Better and Safer place to live.

To carry out Research in the area of Forensic Science, Crime Investigation, Security, Behavioral Science and Criminology.

The NFSU with the status of an Institution of National Importance, is the **world's first and only University dedicated to Forensic, behavioral, cybersecurity, digital forensics, and allied Sciences.**

Apart from Gujarat, its campuses have been opened in Bhopal, Goa, Tripura, Manipur and Guwahati.

What is forensic science ?

Forensic science comprises a diverse array of disciplines, from fingerprint and DNA analysis to anthropology and wildlife forensics. F**orensic science is a critical element of the criminal justice system.**

Forensic science is the application of scientific perspectives and techniques to the legal process, including investigations and courtroom protocol. It is the use of scientific data and procedures specifically for the legal system.

There is rigorous procedure involved, including controlled conditions, reliable data collection and the attempt to disprove hypotheses.

Challenges involved

Woefully inadequate number of forensic science laboratories (FSL)

Lack of adequate qualified personnel, often trials were delayed due to non-receipt of FSL reports.

Lack of information on staffing from the labs

Takes an inordinate amount of time for the report to be prepared.

Often, forensic analysis is simply not conducted and the criminal justice system relies principally on witness statements.

What should be done ?

More investment in the establishment of FSL laboratories

Proper training and appointment of personnel adept at forensic methodologies

Reforms within our police to establish a trained and skilled detective cadre tasked with solving complex and heinous crimes.

Good quality training facilities, standards of accreditation and continuous education programmes for forensic experts.

Study of Forensic science as it evolves, as it is important to know which facets of the science are still credible and what methodologies must be discarded.

It is not more legislation and harsher punishments that will solve crimes, but well-trained forensic staff plying their craft in good quality laboratories that will aid our criminal justice system.

SPECTROGRAPHIC INVESTIGATION OF NEBULAR GAS (SING)

Why in News?

India-China dispute casts gloom over space project.

About SING

Tension between India and China is worrying Indian astrophysicists involved in an ambitious project to install an India-made spectroscope aboard the developing Chinese space station, **Tiangong**.

The Indian astrophysicists are part of an ambitious United Nations-led project - Spectrographic Investigation of Nebular Gas (SING).

The project, called **Spectrographic Investigation of Nebular Gas (SING)**, also involves collaboration with the Institute of Astronomy, Russian Academy of Sciences, and has been designed and developed by research students at the IIA.

A spectrograph is an instrument that splits light into constituent frequencies and wavelengths, to study ultraviolet radiation.

The SING project would be the **first space-collaboration involving India and China,** and primarily deals with sending and positioning a spectrograph, an instrument that splits light into constituent frequencies and wavelengths, to study ultraviolet radiation.

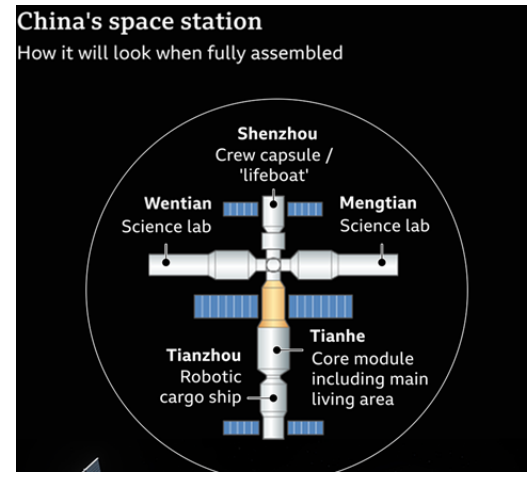
This will aid in the investigation of the sources of interstellar gas in the region swept by the space station as it orbits the Earth.

The spectrograph is scheduled to be delivered to the Chinese team in November 2022 and installed as a payload on the Chinese space station (CSS).

Earlier, both India and China have collaborated for the **Giant Metre Wave Radio Telescope**, a Pune-based observatory that is employed to observe and analyze stars and galaxies.

About Tiangong space station

Tiangong (or Heavenly Palace) is a T-shaped space station being constructed by China in low Earth orbit between 340 and 450 km above the surface.The construction of the station is based on the experience gained from its precursors, Tiangong-1 and Tiangong-2.



Once completed, Tiangong will have a mass roughly one-fifth the mass of the International Space Station and about the size of the decommissioned Russian Mir space station. It will be only the second such station after the International Space Station in orbit.

LUMPIPROVACIND

Why in news?

In a major breakthrough, two institutes of Agri research body ICAR have developed an indigenous vaccine for Lumpy Skin Disease in cattle which have spread across many States in the last few months.

About LumpiProVAcInd

It is an indigenously-developed vaccine against the Lumpy Skin Disease(LSD) virus.

Rajasthan, followed by Gujarat, Punjab, Himachal Pradesh, Andaman & Nicobar and Uttarakhand are reporting higher rate of deaths of cattle.

Developed by: ICAR's National Research Centre on Equines(NRCE) at Hisar, Haryana and the Indian Veterinary Research Institute (IVRI) at Izatnagar, UP

Type: It is a live attenuated vaccine, similar to those used against tuberculosis, measles, mumps and rubella.

Efficacy: This vaccine provides 100% protection against LSD in cattle.

About Lumpy Skin Disease

LSD is endemic to Africa and parts of West Asia, where it was first discovered in 1929.In India it was first reported from Mayurbhanj, Odisha in August 2019. India, which has the world's highest 303 million head of cattle, the disease has spread to 15 states within just 16 months.

Symptoms

It appears as nodules of two to five centimeter diameter all over the body, particularly around the head, neck, limbs, udder (mammary gland of female cattle) and genitals.

The lumps gradually open up like large and deep wounds.

Other clinical signs include general malaise, ocular and nasal discharge, fever, and sudden decrease in milk production.

Effect: According to the Food and Agriculture Organization (FAO) the mortality rate is less than 10%.

Vectors: It spreads through mosquitoes, flies and ticks and also through saliva and contaminated water and food.

Prevention: Control and prevention of lumpy skin disease relies on four tactics - movement control (quarantine), vaccination, slaughter campaigns and management strategies.

Implications: This will have a devastating impact on the country, where most dairy farmers are either landless or marginal landholders and milk is among the cheapest protein sources.

HIV AIDS DRUG SHORTAGE IN INDIA

Why in news ?

Recently, India is witnessing the shortage of HIV (Human Immunodeficiency Virus) Drugs, certain Antiretroviral (ARV) drugs in Anti-Retroviral Therapy (ART) centres.

People Living with HIV (PLHIV) are facing an acute shortage of life-saving drugs protesting outside the National AIDS Control Organisation (NACO) office in the capital.

About

The main shortage is of dolutegravir, used as part of the first-, second-, and third-line ART combinations.There is also a shortage of nevirapine syrup that is given to infants with HIV.

Why is the shortage a concern?

While there is no cure for HIV infection, ART aims to reduce the replication of HIV and bring the viral load to undetectable levels. There has been a decline in mortality and illness resulting from HIV infection due to better availability of affordable and effective ART.

What is NACO?

The National AIDS Control Organization (NACO) under the Ministry of Health and Family Welfare is the nodal agency responsible for overlooking and coordinating activities of the National AIDS Control Programme (NACP) along with the Central Medical Services Society, which is responsible for centralized tendering and pooled procurement of different HIV products.

It serves as the nodal organization for formulation of policy and implementation of programmes for prevention and control of HIV/AIDS in India through 35 HIV/AIDS Prevention and Control Societies.

NACO offers combined oversight of Blood Bank licensing, Blood Donation activities, and Transfusion Transmitted Infection testing and reporting along with drug control authorities.

Additionally, NACO collaborates with the National Institute of Medical Statistics (NIMS) of the Indian Council of Medical Research (ICMR) to conduct HIV estimations biennially (every two years) (NIMS).

In India, the first round of HIV estimation was conducted in 1998, and the most recent round was conducted in 2017.

What is ART ?

ART is a combination of HIV medications that patients must take every day. Acquired immunodeficiency syndrome (AIDS) is a chronic, potentially life-threatening condition caused by HIV.

Adherence to ART regimen is vital in HIV AIDS treatment. Any irregularity in following the prescribed regimen can lead to resistance to HIV drugs, weakening or negating its effect.

Example

Abacavir (Ziagen), Emtricitabine (Emtriva), Lamivudine (Epivir),Tenofovir disoproxil fumarate (Viread), Zidovudine (Retrovir)

RNA TO COMBAT CANCER

Why in news?

Chennai researchers identify a micro-RNA that kills breast cancer cells by weakening their defence against debilitating oxidation.

About

A certain type of RNA is being looked at closely for a cancer cure. Among the several types of RNAs, **the micro-RNA, or miRNA**, influences how genes make proteins. In other words, miRNA can kill a cell or help it proliferate. **miRNA is different from mRNA, or messenger RNA.**

Altering miRNA levels in cancer cells has promising potential as a therapeutic intervention. There is ongoing research to find out which miRNA works best for which type of cancer, how to make it and how to deliver it into the body. This approach to cancer therapy gains even more importance when compared with conventional cancer therapies such as chemo, radiation and surgery, which end up killing the good cells of the body, too.

Indian researchers have reported successfully using a particular miRNA for treating breast cancer. In breast cancer, especially among Indian women, a protein called SLC7A11 gets over-produced in the cancer cells. The traditional way of treating this is to use drugs such as **sulfasalazine to inhibit the production of this protein.** In the latest development, the researchers have identified an miRNA, called **miR-5096**, as the one that is effective against breast cancer.miR-5096 was found to induce cell death by suppressing the SLC7A11 protein.

Ferroptosis is a way of killing cells (**programmed cell death**) that was discovered a decade ago, where **cells die when iron accumulates inside them**. Now, iron means rust, and the anti-oxidants in the body fight this rust. This way, the accumulated iron uses up all the anti-oxidants in the cell, leaving the cell membrane defenseless against the oxidation that happens naturally. Cell membranes are made up of lipids and proteins. The lipids get oxidized (**called lipid peroxidation**) and the cell membrane collapses, killing the cell.

The researchers demonstrated that miR-5096 targets and inhibits the production of the protein SLC7A11. This protein protects the cell from ferroptosis. When the miR-5096 inhibits the production of the protein, it leads to a pile-up of iron in the cells, **ferroptosis**, and, eventually, cell death.The results of the study prove that miR-5096 can effectively kill breast cancer cells.

The micro-RNA is present in human cells and can be replicated in a lab. Currently, micro-RNAs have gone into preclinical trials; scientists are working with cancer in animals, but that disease is not an exact replica of the human disease.

Further, cancer cells also use several pathological mechanisms to sustain, proliferate and evade treatments. However, the miR-5096 is a breakthrough; with validation in clinical trials, it can turn out to be an effective cancer cure.

What is ferroptosis used for?

Ferroptosis is an intracellular iron-dependent form of cell death that is distinct from apoptosis, necrosis, and autophagy. Extensive studies suggest that ferroptosis plays a pivotal role in tumor suppression, thus providing new opportunities for cancer therapy.

What is RNA ?

Ribonucleic acid (abbreviated RNA) is a nucleic acid present in all living cells that has structural similarities to DNA. Unlike DNA, however, RNA is most often single-stranded.

An RNA molecule has a backbone made of

alternating phosphate groups and the sugar ribose, rather than the deoxyribose found in DNA. Attached to each sugar is one of four bases: adenine (A), uracil (U), cytosine (C) or guanine (G).

Types of RNA

RNA polymerase synthesizes RNA from DNA that is functionally for protein-coding (messenger RNA, mRNA) or non-coding (RNA genes). Because of these functions, RNA molecules are of following types:

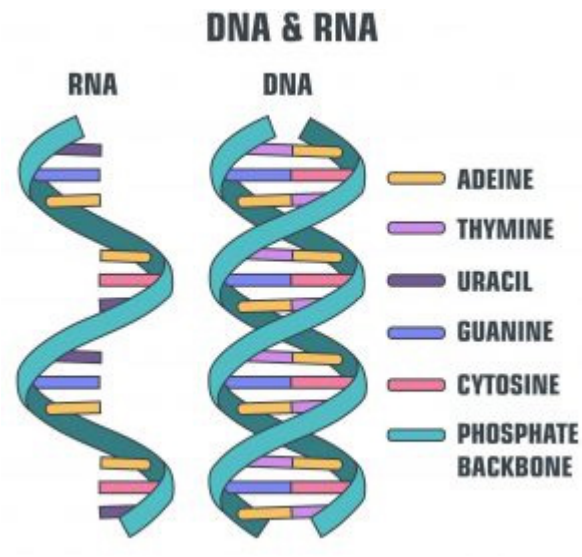
messenger RNA (mRNA) – It is the RNA that carries information from DNA to the ribosomes (site of protein synthesis) in the cell. The mRNA code sequences determine the amino acid sequence in the protein that is produced.

ribosomal RNA (rRNA) – It incorporates into the ribosomes.

transfer RNA (tRNA) – It is used to transfer specific amino acids to growing polypeptide chains at the ribosomal site of protein synthesis during translation.

small nuclear RNA (snRNA)

microRNA (miRNA) – They are used



to regulate gene activity; They are tiny (~22 nucleotides) RNA molecules that regulate the expression of messenger RNA (mRNA) molecules.

small nucleolar RNA (snoRNA)

long non-coding RNA (lncRNA)

catalytic RNA (ribozymes) which functions as an enzymatically active RNA molecule.

IMPLICATIONS OF 5G ROLL OUT FOR LAW ENFORCEMENT

Context

In the recent past, the Prime Minister of India announced that 5G deployment in India will commence sooner than expected. As per some reports, there are expectations that the government may launch 5G at the inauguration of the India Mobile Congress on September 29.

Importance of 5G Network from the angle of law enforcement in India

Ensuring security

The police can have faster access to critical information in real-time, and it would be able to nab criminals. This is because the 5G has high bandwidth and will allow ultra-fast Internet speeds with low latency.

The police devices such as body cams, facial recognition technology, automatic number-plate recognition, drones, and CCTVs, working on the 5G network would perform better.

The increased storage capacity promised by 5G will allow the police to streamline their investigation methods.

5G will also allow rapid and secure communication within the organization as well as between civilians and emergency responders.

Challenges in the adoption of the 5G network

Cybersecurity concerns

India has a poor cybersecurity foundation. For example, India's previous networks were hardware-based, but 5G is a software-defined digital routing. Therefore, India's networks are susceptible to cyber threats such as botnet attacks, man-in-the-middle attacks, and distributed denial-of-service (DDoS) overloads.

5G lacks end-to-end encryption. Therefore, hackers can hack into systems to perpetrate cybercrimes

The 5G led bandwidth expansion will enable criminals to embezzle databases easily. Further, the frequency of attacks would increase with time as more devices will be connected to the 5G network,

Due to a faster network, there could be a lower probability of criminals getting caught after commissioning identity theft or credit card fraud or stealing information from computers, smartphones, and tablets.

5G may also make it easier for criminals to perpetrate cyberbullying.

It could be easy to carry out DDoS onslaughts because of the real-time communication capabilities between multiple criminal groups.

5G would enable hackers to enter into Internet-of-Things (IoT) devices and commit crimes. For example, an IoT vehicle can be hacked to cause an accident or make a ransom to collect insurance money, etc.

Further, Terrorists would be able to execute attacks more rapidly and precisely with a 5G network.

Solutions for fighting new-age crimes

The Indian police will need to be trained so that they are able to recognize new 5G-enabled crimes.

There should be the development of training programs that focus on such 5G-enabled crimes.

The government and telecom companies could think of setting up a 5G crime monitoring task force to monitor and identify new crimes and develop countermeasures.

It is imperative to create regulations that make it a crime for people to use 5G technology to commit crimes.

Equipment to track the location of victims and perpetrators of 5G-facilitated crimes for countermeasures.

Law enforcement agencies will have to evolve

strategies to identify victims of 5G-facilitated crimes in India, locate them, and take action against the perpetrators of such crimes.

Law enforcement agencies should have the necessary infrastructure to take full advantage of all that 5G can offer. The government must provide funds to invest in modern tools, software and infrastructure.

APPLICATIONS OF QUANTUM COMPUTING IN CLIMATE CHANGE SOLUTIONS

Quantum Computing

Quantum computing is a rapidly-emerging technology that harnesses the laws of quantum mechanics to solve problems too complex for classical computers. Quantum computers deploy qubits rather than classical logical bits that aid in magnified computing power, exponential processing capabilities, and outcomes

Quantum mechanics is a subfield of physics that describes the behavior of particles — atoms, electrons, photons and almost everything in the molecular and submolecular realm.

Developed during the first half of the 20th century, the results of quantum mechanics are often extremely strange and counterintuitive.

Quantum computing - Applications

- Artificial intelligence
- Better batteries
- Cleaner fertilization
- Cybersecurity
- Drug development
- Electronic materials discovery
- Financial modeling
- Solar capture
- Traffic optimization
- Weather forecasting and climate change

Quantum Computing in Climate Change

Quantum technology has immense potential to power solutions for the climate crisis. Quantum applications and processes can play a critical role in our sustainable future, ensure compliance with emission standards, improve climate-related decision-making, and provide long-term solutions for a better environment.Quantum computers can be used with other emerging technologies like AI and machine learning to improve evidence-based decision-making

Because the computational power of quantum processors are multitudes more powerful than traditional alternatives, computer models can become much more accurate. By feeding larger datasets into the machine and having that information processed quicker and more efficiently than ever before, we can get a clearer view of what exactly climate change is doing to the planet and what might be on the horizon for us. These models can also extend to understanding large complex molecules — something that traditional computers are effectively unable to accomplish

A few ways in which quantum computers can reduce global warming are discussed below.

Power storage and supply

Electricity generation is one of the leading causes of greenhouse gas (GHG) emissions and Quantum computing has the ability to **optimise power generation** through simulations and **map demand/supply** with more accuracy and also identify leaks and gaps in power supply. **Smart grids** that use quantum algorithms can help reduce transmission losses.

In India, 15 percent to 20 percent of renewable energy is wasted every year (which is due to variation in the wind speed and solar intensity) as the grid cannot manage energy fluctuations. The usage of such simulations can reduce the wastage of energy

At present, batteries of electric vehicles, whether acid-based or Li-based, have limited

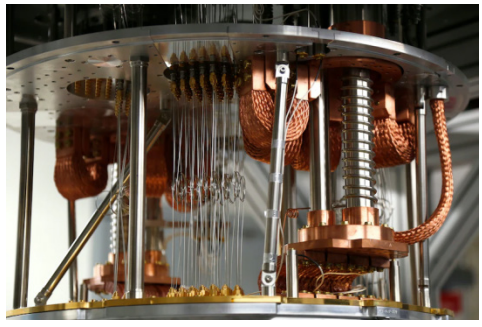
storage capacities and need to be replaced regularly. Further, their disposal has led to a severe environmental challenge as most of them are discarded without due caution, leading to soil, air, and water pollution.

Quantum computers can suggest methods to improve the efficiency of power storage and also store power for longer periods, thereby cutting down on the need for replacing these batteries often. This would be critical to kekeepinglobal warming levels at less than 2°C by 2050.

Construction materials

Quantum technologies can aid in the **designing of new sustainable materials**, which lower emission levels, and help reduce pollution.These new materials would be lighter and more robust, improving the longevity of infrastructure and reducing the frequency of maintenance and replacement.

This helps to replace materials like cement, aluminium, and steel that are energy intensive, account for high emissions during their production as well as in their usage.



Chemical Catalysts

Using chemical catalysts to capture CO2 for storage or to convert it into useful products is one way to overcome the climate change. But **existing catalysts tend to be made of expensive materials or are difficult to deploy**. Quantum computing can be huge step in identifying cheaper, easier-to-make compounds that can scrub CO2 from the atmosphere more effectively..

Every atom added to a compound makes simulation exponentially more difficult, requiring us to use our best guesses in a tedious trial and error process instead. Currently, quantum computers can simulate simple compounds with a few dozen qubits.

Transportation and logistics

Transportation of goods and materials with the help of trucks, trains, aeroplanes, and waterways and the movement of people via cars, buses, trains, and other private vehicles accounts for nearly 20 percent of the global GHG emissions.

Modern-d transportation involves the use of fluid dynamics which gets restricted in efficiency because classical computing cannot simulate large surfaces. This implies that a lot of such simulations are to be carried out as physical prototypes, which not only lead to GHG emissions but also are limited to only a few use cases.

Such problems can be rectified by the use of quantum simulations which can provide better designs and reduce losses based on the system's constraints. Aircraft manufacturers like Boeing and Airbus are also contemplating quantum-led innovation which can reduce fuel consumption.

Reducing Emissions from Fertilisers

The emerging technology will also be useful for the fertiliser industry. At present, fertiliser production accounts for nearly 2 percent of the global GHG tally. And with the use of quantum computers, the process of nitrogen fixation can be made more sustainable and eco-friendly.

Researchers and scientists are using quantum modelling to fathom the process of natural nitrogen fixation used by soil bacteria which can later be developed synthetically to curb soil pollution and lower the energy demand in the production of chemical nitrogen-based fertilisers.

Precise Models

When quantum computing algorithms are used along with predictive data modelling, forest fires can be pre-empted and flood mitigation can be scaled immensely. Other than this, extreme weather conditions that often impact power supply

and surge in demand can also be predicted and addressed accordingly.

Way Ahead

At present, there is only limited discussion on the use of quantum technologies to mitigate the climate crisis. While governments have rolled out strategies, missions, and programmes for advancing quantum technologies, most nation-states have not concluded on the practical applications of the technology

At the same time, Quantum tech solutions will require extensive training and skilling of technology professionals, civil society experts, climate change agents, and civil servants. This will help all the stakeholders to ensure that tech solutions can be tailored contextually

Along with technological development, working on ethical frameworks for the use of quantum technologies will also be important

Quantum Supremacy

The phrase 'quantum supremacy' was coined in the year 2011 by John Preskill, Professor of Theoretical Physics at the California Institute of Technology. Quantum supremacy refers to a problem-solving process by the quantum computer that cannot be solved by a classical computer in its normal lifetime. The concept is related to the speed at which a quantum computer performs.

Quantum Simulators

Quantum simulators permit the study of a quantum system in a programmable fashion. In this instance, simulators are special purpose devices designed to provide insight about specific physics problems.Quantum simulators may be contrasted with generally programmable "digital" quantum computers, which would be capable of solving a wider class of quantum problems.

SECURITY

What's Inside?

1. NATIONAL AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM
2. GORKHA REGIMENT
3. ADVANCED TOWED ARTILLERY GUN SYSTEM (ATAGS)
4. 4TH INDIA-OMAN JOINT MILITARY EXERCISE 'AL NAJAH-IV'
5. EXERCISE VINBAX
6. AGM 88 HARM MISSILE
7. F-INSAS, NIPUN MINES, LCA
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NATIONAL AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM

Why in news?

India has inaugurated a National Automated Fingerprint Identification System(NAFIS), a centralised database of fingerprintsat the two-day National Securities Strategies (NSS) Conference 2022 held in New Delhi.

About –

NAFIS is conceptualized and managed by the National Crime Records Bureau (NCRB) at the Central Fingerprint Bureau (CFPB) in New Delhi,

The National Automated Fingerprints Identification System (NAFIS) project is a **country-wide searchable database of crime- and criminal-related fingerprints**. The web-based application functions as **a central information repository** by consolidating fingerprint data from all states and Union Territories.

NAFIS will provide the much-needed unique identifier for every arrested person in the CCTNS (Crime and Criminal Tracking Network & Systems) database as both are connected at the backend, by assigning a unique 10-digit National Fingerprint Number (NFN) to each person arrested for a crime.

Fingerprint Analysis & Criminal Tracing System

Upon the recommendations of the National Police Commission in 1986, the Central Fingerprint Bureau first began to automate the fingerprint database by digitizing the existing manual records through India's first Automated Fingerprint Identification System (AFI) in 1992, called Fingerprint Analysis & Criminal Tracing System **(FACTS 1.0)**

The latest iteration, **FACTS 5.0**, which was upgraded in 2007, was considered to have "outlived its shelf life", according to a 2018 report by the NCRB and thus needed to be replaced by **NAFIS.**

Central Finger Print Bureau

The world's first Finger Print Bureau was set up in Calcutta in 1897. CFPB is the apex body in the country which coordinates, guides, monitors and provides technical support to the State Finger Print Bureaux, as well as investigatingagencies and international organizations in all matters related to Finger Print Science.

CFPB came into being under the administrative control of the Intelligence Bureau. In 1973 the administrative control was transferred to CBI and it was in 1986 that the CFPB was finally placed under the administrative control of the newly formed **National Crime Records Bureau**

At the Central Finger Print Bureau, all the questioned documents involving disputed Finger Prints are examined and opinion given regarding their identity or otherwise. The service is free of charge for all Government agencies and Public SectorUndertakings. In case of private agencies or individuals, the documents should be routed through Govt. agencies.

CFCB publishes 'Finger Print in India', an annual publication, which is an in-depth study of the performance and activities of all the Finger Print Bureaux of the country

Crime and Criminal Tracking Network & Systems (CCTNS)

CCTNS is a Mission Mode Project under the National e-Governance Plan (NeGP) of Govt. of India.

CCTNS aims at creating a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing through adopting of principle of e-Governance and creation **of a nationwide networking infrastructure for evolution of IT-enabled-state-of-the-art tracking system** around 'Investigation of crime and detection of criminals'.

GORKHA REGIMENT

Why in news?

The Indian Army will continue to recruit Nepal Domicile Gurkhas (NDGs) under the Agnipath scheme, the Ministry of External Affairs (MEA) said.

About -

Ties between British-India and Nepali Gurkhas, who originate from the mountenous region of Gurkha, go deep, and can be traced to the famous **Treaty of Sugauli**, signed at the end of the **Anglo-Nepalese war**.

That was in 1816, when troops of the British East India Company discovered that despite losing the war, the Nepali Gurkhas had fought with exceptional valour and grit, worthy of recruitment in the British-Indian forces. Consequently, the first battalion of the Gurkha Regiment was raised.

Gurkhas had engaged in combat during the Gurkha-Sikh War, Anglo-Sikh wars, and the Afghan wars. By the time the First World War began, 10 Gurkha regiments had already been raised in the British Indian Army

Their signature weapon, **the khukri**, famous for the inwardly curved shape of its blade and its legendary utility, forms part of the Gurkha regimental insignia in Britain as well as in India.

The Gurkhas are recruited every year at the British Gurkha camp at Pokhara in Nepal. The camp enlists fresh recruits not only for the **British Army,** but also for the counter-terror arm of the **Singapore Police Force**. British Army scouts roam the Nepalese countryside to identify potential recruits, who then undergo a rigorous training process before joining.

Gurkha Regiment in Independent India

After India gained Independence, six Gurkha regiments were transferred from the British to the Indian Army as part of a tripartite agreement between Nepal, India and Britain. A seventh regiment was raised after Independence.

Currently, there roughly are 32,000 Gurkhas who make up the 40 battalions serving in the seven regiments in the Indian Army. There is not a single military campaign launched by independent India, where the battalions have not left their indelible mark.

ADVANCED TOWED ARTILLERY GUN SYSTEM (ATAGS)

On the Independence Day, Advanced Towed Artillery Gun System (ATAGS), an indigenously developed howitzer, became part of a 21-gun salute at the Red Fort.

The ATAGS is an indigenous 155 mm x 52 calibre howitzer gun. It is developed by the Defence Research and Development Organisation (DRDO) with its Pune-based facility Armament Research and Development Establishment (ARDE) being the nodal agency.

The ATAGS project was started in 2013 by DRDO to replace older guns in service in the Indian Army with a modern 155 mm artillery gun. The system is currently undergoing an evaluation by the Directorate General Quality Assurance (DGQA) marking its final stage before

the Army places orders for it. The DGQA is a nodal agency for the quality assurance of all arms, ammunition, equipment and stores supplied to the Armed Forces.

Features:

The armament system of ATAGS mainly comprises barrel, breech mechanism, muzzle brake and recoil mechanism to fire 155 mm calibre ammunition held by Army with a longer range, accuracy and precision and provides greater firepower.

The ATAGS is configured with all electric drive to ensure maintenance free and reliable operation over a longer period of time. It has advanced features in terms of high mobility, quick deployability, auxiliary power mode, advanced communication system, automatic command and control system with night firing capability in the direct fire mode.

The specialised gun system is compatible with C4I (command, control, communications, computers, and intelligence) systems like the Artillery Combat Command and Control System (ACCCS) called Shakti for technical fire control, fire planning, deployment management, and operational logistics management of the Army.

4TH INDIA-OMAN JOINT MILITARY EXERCISE 'AL NAJAH-IV'

The 4th Edition of India-Oman Joint Military Exercise 'AL NAJAH-IV' begins in Rajasthan at the Foreign Training Node of Mahajan Field Firing Ranges.

The exercise takes place between contingents of the Indian Army and the Royal Army of Oman from August 01 to 13, 2022. The 3rd edition of Ex AL NAJAH IV was held at Muscat from 12 to 25 March 2019.

Important points of exercise:

The Indian Army will be represented by troops from the 18 Mechanised Infantry Battalion at the AL NAJAH-IV.

The Royal Army of Oman contingent will be represented by the Sultan of Oman Parachute Regiment.

The objective of this joint military exercise is to enhance the level of defence cooperation

between the Armies of India and Oman as well as the bilateral relations between the two nations.

The exercise would focus on Counter Terrorism Operations, Regional Security Operations and Peace Keeping Operations under the United Nations charter, joint physical training schedules, tactical drills, techniques and procedures.

EXERCISE VINBAX

India, Vietnam kick-starts 3rd edition of Army Exercise 'VINBAX'

To bolster strategic partnership and defence cooperation, India and Vietnam have kick-started the 3rd edition of Vietnam-India bilateral army exercise "Ex VINBAX 2022".

The 20-day military drill is scheduled to be conducted at Chandimandir in Haryana from 1st to 20th August 2022.

The exercise is a sequel to earlier conducted bilateral exercise in Vietnam in 2019 and a major milestone in strengthening the bilateral relations between India and Vietnam.

"The theme of 'Ex VINBAX – 2022' is employment and deployment of an Engineer Company and a Medical Team as part of United Nations Contingent for Peacekeeping Operations," an official statement by the Ministry of Defence stated.

Notably, India has a rich legacy of deployment of troops in United Nations missions and has some of the best capacities to impart United Nations peace operations training incorporating best practices and hands-on training to prospective United Nations peacekeepers at tactical, operational & strategic levels.

Further, India and Vietnam share a comprehensive strategic partnership and defence cooperation, which is a key pillar of this partnership.

Importantly, Vietnam is a vital part of India's Act East policy and the Indo-Pacific vision.

The Relevance of 'VINBAX'

The 3rd edition of joint Indo-Vietnam army exercise is focused on training exercises with enhanced scope from previous editions of bilateral exercise.

It will strengthen mutual confidence, inter-operability and enable sharing of best practices between the Indian Army and Vietnam People's Army.

The military drill will also provide an opportunity to the troops of both the contingents to learn about the social and cultural heritage of each other.

The Indian Army is being represented by troops from the 105 Engineer Regiment.

Additionally, a 48 hours Validation Exercise is part of the schedule to assess the standards achieved by both contingents while executing technical military

operations under similar scenarios in UN missions.

A Humanitarian Assistance & Disaster Relief demonstration and equipment display will showcase India's capacity to undertake rescue and relief operations during natural and manmade disasters utilising indigenous solutions.

AGM 88 HARM MISSILE

What is the AGM-88 HARM missile?

The acronym 'HARM' in the AGM-88 HARM air-to-surface missile stands for High-Speed Anti-Radiation Missile.

It is a tactical weapon fired from fighter aircraft, and has the capability to detect and home into radiation emitted by hostile radar stations that have surface-to-air detection capabilities.

The missile was originally developed by the Dallas-headquartered Texas Instruments, but is

now produced by the major American defence contractor Raytheon Corporation.

An advanced version of the weapon is manufactured by Dulles, Virginia-based Northrop Grumman.

The AGM-88 HARM is 14 metres in length, but only 10 inches in diameter. It weighs around 360 kg and carries a fragmentation type warhead that is optimised for radar targets.

It also has an anti-radar homing seeker broadband RF antenna and receiver, and a solid state digital processor.

The missile has a range of more than 100 km

For the past several days, Russian social media users have been sharing open-source information on Telegram to the effect that remnants of the AGM-88 HARM have been found near a Russian surface-to-air missile site.

The pictures of the seeming remnants of the missile appeared to show genuine serial numbers, which were traced to AGM-88 HARM by open source intelligence analysts. The statement by the US has now confirmed these deductions.

A CNN report noted that the Russia-Ukraine war is the first in which the weapon has been confirmed to have been used by a military other than the US.

However, its usefulness, considering the limited number of aircraft in the Ukrainian Air Force, remains in question.

The same CNN report also said given that Ukraine does not have aircraft known to be compatible with the missile, there is speculation that the missiles may have been fired by NATO aircraft secretly supporting the Ukraine military in combat roles.

F-INSAS, NIPUN MINES, LCA

Why in News?

During the Independence Day celebrations, Defence Minister handed over new defence systems, including the F-INSAS, the Nipun mines, the Landing Craft Assault (LCA), to the Army.

About

F-INSAS

F-INSAS stands for Future Infantry Soldier As A System, a programme for infantry modernisation aimed at increasing the operational capability of the soldier. As part of the project, soldiers are being equipped with modern systems that are lightweight, all-weather-all-terrain, cost-effective and low maintenance.

The full-gear of the F-INSAS system includes an **AK-203 assault rifle**, which is a Russian-origin gas-operated, magazine-fed, select-fire assault rifle.

On the weaponry front, the F-INSAS includes a multi-mode **hand grenade**, which can be used in defensive and offensive modes.

Apart from this, the F-INSAS provides soldiers **with ballistic helmets and ballistic goggles** for protection against small projectiles and fragments, along with a **bullet-proof vest.** The helmet and the bullet-proof jacket are capable of protecting the soldier against 9 mm bullets and ammunition fired from AK-47 rifles.

For target acquisition, the **soldier has rifle-mounted holographic sight** for fast and accurate aiming with a range of 200 metre.

The helmet has a mounted **night-vision device** for operating in low-light conditions, and the option of installing a thermal imager sight. Thermal imagers covert infrared energy from objects into thermal images.

The F-INSAS also comes with hands-free, secured advanced **communications set** for real-time exchange of information with the command post and fellow soldiers for enhanced situational awareness.

Most importantly, all these items have beenindigenously designed by the Indian entities, including the DRDO and the ordnance factories ecosystem.

The DRDO had conceptualised the F-INSAS in line with the targets of the Army's Infantry Soldier Modernisation Programme with an aim

to optimise the soldier's performance across the full spectrum and duration of a military operation.

NIPUN MINES

Nipun mines are indigenously designed and developed anti-personnel mines, termed by the DRDO as 'soft target blast munition'. These mines are meant to act as the first line of defence against infiltrators and enemy infantry.

Anti-personnel mines are meant to be used against humans as against anti-tank mines that are aimed at heavy vehicles. They are smaller in size and can be deployed in large numbers. The Army has said that the mine will provide protection to the troops on the borders and is more potent and effective than the existing anti-personnel mine in its arsenal.

LANDING CRAFT ASSAULT

The Landing Craft Assault (LCA) is meant to serve as a **replacement for the boats with limited capabilities currently in use in Pangong Tso Lake.**

The LCA, which has been indigenously developed by **Goa-based Aquarius ShipYard Limited**, is said to have better launch, speed and capacity to operate across water obstacles in eastern Ladakh. Similar vessels are already in operation in the Indian Navy.

EXERCISE PITCH BLACK 2022

Why in News?

Indian Air Force Reaches Australia with 4 Sukhois for Pitch Black Exercise

About

Exercise Pitch Black is **a biennial warfare exercise** hosted by the Royal Australian Air Force (RAAF). The exercise is normally held in Northern Australia, primarily at RAAF Bases Darwin and Tindal.

The aim of the exercise is **to practice Offensive Counter Air (OCA) and Defensive Counter Air (DCA) combat**, in a simulated war environment. It will provide Indian Air Force a unique opportunity to exchange knowledge and experience with these nations in a dynamic warfare environment.

The participants nations this year are Australia, Canada, France, Germany, Indonesia, India, Japan, Malaysia, Netherlands, New Zealand, the Philippines, South Korea, Singapore, Thailand, UAE, the U.K, and the U.S.

Australia India Defence Relationship

AUSINDEX is a bilateral naval exercise between the Indian Navy and the Australian Navy.

AUSTRAHIND is a bilateral army exercise

The Information Fusion Centre - Indian Ocean Region in Gurugram is an Indian initiative to boost maritime security and response through the exchange of information related to the ships in the **Indian Ocean Region**.

Civil Nuclear Cooperation

A **Civil Nuclear Cooperation Agreement** was signed in **September 2014** which came into force in November 2015.

The deal ensures that **Uranium mining companies** of Australia can supply uranium to India for civil use.

PROJECT ZORAWAR

Why in News?

With the "increased threat" from China along India's northern borders "likely to remain in the foreseeable future", the Army is launching Project Zorawar — the induction of indigenous light tanks for quicker deployment and movement in high altitude areas.

About

The Indigenous Indian Light Tank aptly named 'Zorawar' is designed to operate in varying terrain from High Altitude Areas, the marginal terrain to the Island territories will be highly transportable for rapid deployment to meet any operational situation.

The Army is looking at a light tank with a maximum weight of 25 tons— with a margin of 10 per cent — with the same firepower as its regular tanks.

The tank should be armed with Artificial Intelligence (AI), integration of tactical surveillance drones to provide a **high degree of situational awareness** and loitering munition, along with an active protection system.

Missile-firing capability, counter-drone apparatus, warning system and a power-to-weight ratio will make the tanks **"very agile"**.

The light tanks will help the Army overcome the limitations of medium battle tanks and equip the force for all contingencies in high altitude area, marginal terrain and island territories besides its utilization in the plains, semi-deserts and deserts.

The project has been named 'Zorawar' after Zorawar Singh Kahluria, a military general who served under **Jammu's Raja Gulab Singh**, known as the '**conqueror of Ladakh**'.

Swarm Drone Systems

In another development Indian Army has also given go-ahead for the induction of indigenous "swarm drone systems":

Indian Army has inducted indigenously produced Swarm Drones Systems aiming to employ them in both **offensive and defensive operations.**

A swarm drone system consists of a number of small drones which are AI-enabled and capable of communicating with the control station as well as among them and provide asymmetric capabilities for taking out frontline assets of the adversary.

Swarm drones consist of a number of drones controlled from the same station which can be programmed using an algorithm to carry out various tasks, including surveillance.

HISTORY

ART & CULTURE

What's Inside?

PANDURANG KHANKHOJE

Why in news?

Lok Sabha Speaker Om Birla's visit to Canada has put the limelight on Maharashtra-born revolutionary Pandurang Sadashiv Khankhoje (1886- 1967). Birla is currently in Canada to attend the 65th Commonwealth Parliamentary Conference in Halifax.

About –

Born in the late 19th century in Maharashtra's **Wardha**, Pandurang Khankhoje completed his higher studies in Nagpur.

Khankhoje was an ardent admirer of the French Revolution and of the American War of Independence.

The Hindu reformer Swami Dayanand and his Arya Samaj movement, which called for a spirit of reform and social change, became the hero to a young student group led by Khankhoje.

Pandurang Khankhoje and Ghadar

As the Ghadar Party was formed in the US, Khankhoje, as one of the founders, used his military experience at Mount TamalpaisMilitary Academy in California to train volunteers, mostly retired servicemen, to foment trouble for the British in India. However, due to the outbreak of the First World War in 1914, their plans for a militant action in India were foiled.

In 1915, as the Ghadar movement faded, Khankhoje left for Paris to meet **Madame BhikajiCama** who sent him to Germany where he came in contact with **VirendranathChattopadhyaya,** brother of Sarojini Naidu, in Berlin. Chattopadhyaya, who was leading a group of Indian freedom fighters, instilled in him a new hope.

Later he met **Vladimir Lenin** in Russia after the Russian Revolution in 1917. "Although Khankhoje would remain deeply committed to the ideals and principles of Lenin, he was also aware that India was not ready for communism.

Life in Mexico:

With the help of some friends in Mexico, he was appointed a professor at the **National School of Agriculture** in Chapingo, near Mexico City.

He researched corn, wheat, pulses and rubber, developing frost and drought-resistant varieties, and was part of efforts to bring in the **Green Revolution in Mexico**.

Later on in the 20th Century, the American agronomist Dr Norman Borlaug, called the Father of the Green Revolution in India, brought the Mexican wheat variety to Punjab.

Fig. 3.- Parte superior de una planta de teomaíz mostrando la colocación de las mazorcas cubiertas con sus hojas.

Khankhoje was revered as an **agricultural scientist in Mexico**.

The renowned Mexican artist **Diego Rivera painted murals** that featured Khankhoje, including one titled **'Our Daily Bread'** that prominently depicted him breaking bread with people seated around a table.

QUIT INDIA MOVEMENT

India has recently completed 80 years of Quit India movement.

On 8th August 1942, Mahatma Gandhi called to end British rule and launched the Quit India Movement at the session of the All-India Congress Committee in Mumbai. Gandhiji gave the call "Do or Die" in his speech delivered at the Gowalia Tank Maidan, now popularly known as

August Kranti Maidan.

The demand was to end the British rule in India with immediate effect to get the cooperation of Indians in World War-II against fascism. There was a demand to form a provisional government after the withdrawal of the Britishers.

Causes:

Failure of Cripps Mission: Under Stafford Cripps, a mission was sent to resolve the Indian question of a new constitution and self-government. It failed because it offered India not complete freedom but the Dominion Status to India, along with the partition.

Indian Involvement in World War II without prior consultation: The British assumption of unconditional support from India to the British in World War II was not taken well by the Indian National Congress.

Prevalence of anti-British Sentiment: The anti-British sentiments and demand for full-independence had gained popularity among Indian masses.

Centralisation of Many Small Movements: The two decades of mass movement which were being conducted on a much more radical tone under the leadership of the various associated and affiliated bodies of the Congress, like All India Kisan Sabha, Forward Bloc etc. had already prepared the ground for the movement.

Shortage of Essential Commodities: There was widespread discontent due to the shortage of essential commodities and rising prices of salt, rice, etc., and commandeering of boats in Bengal and Orissa.

Phases of Movement

The first phase of the movement had no violence. It began with civil disobedience, boycotts, and strikes that the British Government quickly suppressed. Almost all members of the Congress Committee, including Gandhiji, were arrested and kept in Jail till 1945 without any trial.

In the second phase, the focus shifted to the countryside, which witnessed a major peasant rebellion, marked by destruction of communication systems, such as railway tracks and stations, telegraph wires and poles, attacks on government buildings or any other visible symbol of colonial authority.

The last phase witnessed the formation of national governments or parallel governments in isolated pockets (Ballia, Tamluk, Satara etc.)

Outcomes

Successes:

Women empowerment: This movement had the active participation of women of the country. Aruna Asif Ali hoisted the national flag on the Gowalia tank maidan; Usha Mehta, on the other hand, helped set up the underground radio station to spread awareness about the movement.

Rise of future leaders: This movement also gave some future prominent leaders such as Biju Patnaik, Aruna Asif Ali, Ram Manohar Lohia, Sucheta Kriplani, J.P. Narayan, etc. These leaders were helping the movement through underground activities.

Rise of nationalism: A greater sense of unity and brotherhood emerged due to the Quit India Movement.

Failures:

Britishers were supported by the Princely States, British Indian Army, Indian Civil Services, Viceroy's Council (which had Indians in the majority), All India Muslim League, Indian Imperial Police. The Hindu Mahasabha, Rashtriya Swayamsevak Sangh (RSS) & Muslim League also opposed the Quit India Movement.

ARANMULA KANNADI

Made in Kerala's Aranmula town, Aranmula Kannadi (literally meaning Aranmula mirror) is a handmade metal-alloy mirror, unlike the usual glass mirror.

Aranmula Kannadi is an extraordinary traditional handmade metal mirror which is famous for bringing prosperity, luck and wealth into life.

What's unique about this front surface reflection mirror is that it eliminates secondary reflections that you typically see in back surface mirrors.

Born out of Kerala's rich culture and its inclination towards metallurgical articles, the mirror is said to have tremendous spiritual value and brings good luck.

The Aranmula Kannadi is made with metals only known to the craftsmen of Aranmula and the exact composition is protected by an ancient secret passed through generations of craftsmen in the village.

These mirrors are always made by one extended family in the town of Aranmula.

Considered to be one of the eight auspicious articles or "Ashtamangalyam", this mirror is kept at religious occasions, festivals, and ceremonies like weddings where it makes the entry of the bride pure and auspicious.

The Aranmula Kannadi is said to have originated at the sacred Aranmula Parthasarathy Temple and has a great legend behind it.

What is the Significance of Aranmula Kannadi?

The unique Aranmula mirror holds a special place because of various reasons. Some of them are listed below:

The mirror is considered auspicious and a symbol of good luck. Aranmula Kannadi is considered to bring good luck and prosperity in the home and business front. It is part of the 'ashtamangalya' or the eight auspicious objects displayed during religious and social functions, including New Year celebrations, marriages, etc.

Made out of several rare metals and imbued with the locals' skills and creativity, this mirror serves as a great example of India's expertise in advanced metallurgical techniques that has become a part of our culture over the centuries.

In 2004, this rare craft belonging to a small town in Kerala was given worldwide recognition when a 45-centimeter tall Aranmula mirror was placed in

London's British Museum and awarded a geographical indication (GI) tag.

Owing to the unmatched splendor and religious significance of Aranmula Kannadi, Aranmula was declared a heritage village by Kerala Tourism in orderbto draw tourists' attention to this dying craft.

What is the History Of Aranmula Kannadi?

The exquisite Aranmula Kannadi is a special type of metal mirror produced only in Aranmula, a village in the state of Kerala in India.

Aranmula metal mirror is a precious inherited gift.

The mystery of its production is a family gift handed over through generations.

Aranmuda Kannadi is a rare piece of craft that had existed even during the Vedic period of Indian history.

The Aranmula mirror has a rather interesting history behind its origin. According to the locals, the then king had invited several artisans belonging to the Viswabrahmana caste to Aranmula.

Coming from Sankarankovil in Tamil Nadu, these artisans were called upon for some exquisite construction work inside the Parthasarathy Temple.

Before finally heading home, these artisans had gifted the King a stunning crown bejeweled with a shimmering metal mirror in the center.

The King was so impressed by these crafts people's unique metallurgical skills that he allowed them to stay and even arranged for them to settle near the 'Theke Nada' of the temple itself.

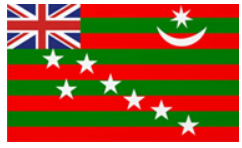
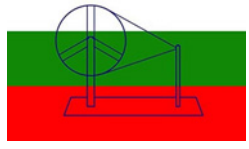
It is said that while two of those families had readily settled, one went back due to a decline in work.

The locals even believe that a woman belonging to these artisans' families had seen the secret formula for making the alloy in a

dream! Since then the generations of Aranmula Kannadi making artisans have kept that formula to themselves as part of the Vishwakarma family secret.

For many years they continued to make mirrors for royal families using that secret formula, before beginning to sell it to tourists and pilgrims as well.

HISTORY OF NATIONAL FLAG OF INDIA

S.NO	Flag	Year	Details
1.		Unofficial flag of India in 1906	• The first national flag in India is said to have been hoisted on August 7, 1906, in the Parsee Bagan Square (Green Park) in Calcutta • The flag was composed of three horizontal strips of red, yellow and green. • Designed by Sachindra Prasad Bose and Hemchandra Kanungo
2.		Berlin committee flag, 1907	• The Berlin committee flag was first raised by Bhikaiji Cama in 1907. • It was hoisted in Paris by Madame Cama and her band of exiled revolutionaries in 1907. • This was very similar to the first flag except that the top strip had only one lotus but seven stars denoting the Saptarishi.
3.		Flag used during Home Rule movement in 1917	• The third flag went up in 1917 when our political struggle had taken a definite turn. • Annie Besant and Lokmanya Tilak hoisted it during the Home rule movement. • This flag had five red and four green horizontal strips arranged alternately, with seven stars in the saptarishi configuration super-imposed on them. • In the left-hand top corner (the pole end) was the Union Jack. There was also a white crescent and star in one corner.
4.		Flag unofficially adopted in 1921	• During the session of the All India Congress Committee which met at Bezwada in 1921 (now Vijayawada) an Andhra youth Pingali Venkayya prepared a flag and took it to Gandhiji. • It was made up of two colours-red and green-representing the two major communities i.e. Hindus and Muslims. • Gandhiji suggested the addition of a white strip to represent the remaining communities of India and the spinning wheel to symbolise progress of the Nation.
5.		Flag adopted in 1931	• This flag was also the battle ensign of the Indian National Army. The year 1931 was a landmark in the history of the flag. • A resolution was passed adopting a tricolor flag as our national flag. This flag, the forbear of the present one, was saffron, white and green with Mahatma Gandhi's spinning wheel at the center. • It was, however, clearly stated that it bor e no communal significance and was to be interpreted thus.
6.		Present tricolour flag of India	• On July 22, 1947, the Constituent Assembly adopted it as Free India National Flag. After the advent of Independence, the colours and their significance remained the same. • The top band of Saffron colour, indicated the strength and courage of the country. The white middle band indicated peace and truth with Dharma Chakra. The last band is green in colour showed the fertility, growth and auspiciousness of the land. • However, Dharma Charkha of Emperor Asoka was adopted in place of the spinning wheel as the emblem on the flag. • It depicted the "wheel of the law" in the Sarnath Lion Capital made by the 3rd-century BC Mauryan Emperor Ashoka. The chakra intends to show that there is life in movement and death in stagnation. • Thus, the tricolour flag of the Congress Party eventually became the tricolour flag of Independent India

PINGALI VENKAYYA

About

Pingali Venkayya was born on August 2, 1876, in Andhra Pradesh.He is also known as '**Jhanda Venkaiah'.**He was a freedom fighter and the designer of the Indian National Tricolour. The national flag that we see today was based upon his design.

At the age of 19, Venkayya had enrolled in the British Indian Army and was deployed to South Africa during the Second Boer War (1899–1902). During the war when the soldiers had to salute the Union Jack, the national flag of Britain, Venkayya realised the need for having a flag for Indians.

Between 1918 and 1921, Venkayya raised the issue of having an own flag in every session of the Congress. Back then, he was working as a lecturer in the Andhra National College in Machilipatnam.

He met the Mahatma once again in Vijayawada and showed him his publication with the various designs of the flag. Acknowledging the need for a national flag, Gandhi then asked Venkayya to design a fresh one at the national congress meeting in 1921.

Initially, Venkayya came up with saffron and green colours, but it later evolved with a spinning wheel at the centre and a third colour-white. (**Lala Hans Raj Sondhi** suggested adding a spinning wheel — showing the independent indians who can spin their own clothing from local fibres.) The flag was officially adopted by

INDIA AFTER 75 YEARS

"Rich in cultural history...

United in the diversity

A salute to my independent country

A salute to its modernity."

At the stroke of midnight hour August 15, 1947, India did not rise to life and freedom. When our leaders self-congratulated themselves to have achieved 'freedom', nothing significant had changed at the grassroots, except those browns had replaced whites. The landless labour working in mines continued his deplorable life under dominant caste contractors. The life of peasants drenched in sweat under the scorching sun reeled in misery as land reform failed miserably and the stigma of pollution still belonged to untouchables as puranic literature ruled the hearts of 'independent Indians'.

The only thing that had changed after independence was that we got a dream. A dream of an egalitarian society which guarantees social justice, liberty, equality and fraternity to all its citizens. With the goal laid out, it was left for future generations to draft plans to achieve the final aim of social, economic and political transformations. Today, our generation is fortunate enough to pick up the baton and chart solutions for 21st century India which is resurgent, powerful yet backward.

Britishers left India as a broken, needy, underdeveloped and economically unstable country, after independence. India prioritized scientific research in its first five-year plan. It paved way for prestigious scientific institutions like IIT and IISC. These institutions promoted research in India with the aid of foreign institutions. From launching its first satellite Aryabhata in 1975 to being the first country to reach the orbit of Mars, India has taken strides in the field of science and technology. We can proudly state that India is standing on par with countries like USA and China. The same goes for biotechnology also where India is producing vaccines for the entire world. The success of UPI is also a careful study for the world with 9.36 billion transactions worth Rs.10.2 trillion in Q1 of 2022 only.

India faced several issues following its independence, including, illiteracy, corruption, poverty, gender discrimination, untouchability, regionalism and communalism. Numerous issues have acted as major roadblocks to India's economic development. In 1947, the GDP was merely 2.7 lakh crore accounting for 3% of the world's GDP. In 1965, the green revolution was started in India, by M. S. Swaminathan which led to a record gain output of 13 million tons. After India was recognized as one of the top agricultural producers in the world, with the construction of linked facilities like factories and hydroelectric power plants, a large number of jobs for industrial workers were also generated in addition to agricultural workers.

India has risen to become Asia's third-largest electricity generator. It increased its ability to produce energy from 1.362 MW in 1947 to 3,95,600 MW. Approximately, all villages use electricity through PM Shaubhaya Yojana.

Today, India has a population of nearly 1.4 billion and a literacy rate of 74.04%. Though India has remarkable progress in terms of literacy rate, the quality of higher education is still a cause of major concern. There is not a single Indian university or institute in the top 100 QS World Universities ranking. With the largest youth population in the world, India can achieve wonders if its youth get equipped with proper skills and education.

The health sector is also worrisome. The doctor-to-patient ratio is merely 0.7 doctors per 1000 people as compared to the WHO average of 2.5 doctors per 1000 people. A recent study shows that 65% of medical expenses in India are paid out-of-pocket by patients and the reason is that they are left with no alternative but to access private health care because of poor facilities in public hospitals.

The Indian military ranked 4 of 142 out of the countries considered for the annual GFP review. Since the establishment of the Defence Research and Development Organisation (DRDO) in 1958, it has created many significant programs and critical technologies including missile systems, small and big armaments, artillery systems, electronic warfare systems and armoured vehicles.

India's economy has expanded significantly in the 21st century. Many significant changes have taken place like scraping section 370, strengthening the defence systems, creating a start-up-friendly environment and much more. To expand manufacturing, our Indian government launched several programs and campaigns including Make in India, Digital India and the Swachh Bharat project.

In today's world, the social media landscape is filled with various services. Social media helps people to connect early and paves the way to share their

thoughts early.

"An average Indian is dissatisfied today," says the "World Happiness Report" (2016) published by the Sustainable Development Solutions Network which ranks India at 118/158 Countries. It lies below many war-torn nations like Palestine (108), Pakistan (81) etc. In common life, we observe students unhappy about their college administration a tenant unhappy about their landlord, citizens blaming politicians for corruption and the chain is infinite. Post LPG reforms in the 1990s, with the permeation of television and DTH, consumerism is injected into their minds even to the farthermost corners.

There has been a rise in deprivation among people which has led to estrangement, jealousy and self-centeredness. Happiness is lost in the pursuit of overtaking one's neighbour. For example, buying a longer car than him, pressuring one's child to score more than his neighbour's child and similar demonstrative effects in other spheres of life. Common middle-class Indian has turned into a money-making robot who is lost somewhere between his office and home. Ironically, he still feels he is "normal." There can be no cure without a diagnosis.

The solution to this conundrum lies within us. Reconnecting to one's internal self was the thought of this year's world culture festival in Delhi. Appreciating the smaller beauties of life like, a child's smile, planting a tree, parents telling their love to children etc. We should be sincere and not serious in our pursuit of life.

India began working on indigenous nuclear energy in the late 1950s and has nuclear power stations by 1970. India has also begun developing nuclear weapons and producing fissile materials. India currently leads several other nations in the production of defences. India is one of about a dozen nations that have built and produced their fighter jets, helicopters, submarines, missiles and aircraft carriers.

We have a network of roads and railways all over the country. Almost every village has been linked to cities through roads and railways. We have achieved self-sufficiency in the industrial field also. Today, India exports heavy machines, railway engines, fans, cars, motorcycles, watches etc. Today, India manufactures railway engines, tanks, ships, aeroplanes, railway bogies etc. Large industrial plants have been set up in Bhilai, Rourkela, Durgapur, Chittaranjan and other places in the country.

Today, India is the 5th largest economy in the world with 147 lakh crore GDP accounting for 8% of global GDP. In recent years, India has seen a whopping rise in the number of start-ups, which rose from 4750 in 2016 to nearly 77000 as of August 2022. This phenomenal rise in start-ups has only produced millions of new jobs in the country.

Apart from their improvements, our Ease of Doing Business ranking which presently stands poorly at 130/189 in 2016 as per World Bank. An informal discussion with an average Indian businessman will reveal the difficulty of doing business in India. As with many functions in a business, there are many regulators in the government. For example, labour inspections emission watch by NGT, construction monitoring by municipalities, Forex regulations by RBI, equity market by SEBI, taxation by IT Sales tax department and CBEC, and so on.

Industrial reforms also mean venturing into new sunrise sectors, going beyond textiles, jewellery, IT and finance. Sectors like food processing hold immense potential as they have a forward and backward linkage impact which benefits farmers, consumers and the economy as a whole.

Similarly, tourism being labour-intensive, requires minimum capital investment in a geographically gifted country like ours is a blessing that we have availed of so far. Likewise, the education sector also holds a promise. India can create a cadre of 'Indian Education Service' which will export teachers to the world,

capturing the minds of people into local tunes and this will restore its status of 'Jagat guru' once again in the post-Ashokan era as envisaged by Swami Vivekananda.

We have come a long way in our journey but still, there is a lot to be done if we want to make India a 'superpower'. A lot will depend on our people's willingness to change, ensuring the equal participation of women workforce, including marginalised communities in our economic growth and last but not least, having a liberal, progressive and unbiased mindset.

As we are celebrating 'Azadi ka Amrit Mahotsav', the completion of 75 years of independence can be taken as a new opportunity to build an India of our aspirations.

By,

Shalini. R

PRACTICE QUESTIONS

1. Which of the following is an invasive species in Europe recently seen in news?

   a) Brown-and-green frog

   b) Gray Wolf

   c) Golden Eagle

   d) Polar Bear

2. Consider the following statements with respect to floating solar plants.

   1. Ramagundam floating Solar plant in Telangana is the largest such operating plant in India and also the largest in the world.

   2. The water body underneath the solar modules helps in maintaining their ambient temperature, thereby improving their efficiency and generation.

   Which of the following statement/s is/ are correct?

   a) 1 only

   b) 2 only

   c) Both 1 and 2

   d) Neither 1 nor 2

3. Which one of the following lakes of West Africa has become dry and turned into a desert?

   a) Lake Victoria

   b) Lake Faguibine

   c) Lake Oguta

   d) Lake Volta

4. Which of the following is the world's 2nd largest telecom market?

   a) France

   b) Germany

   c) Russia

   d) India

5. Consider the following statements about Anushilan Samiti

   1. The organization arose from a conglomeration of local youth groups in Bengal in 1902 due to the efforts of Satish Chandra Basu.

   2. The organization comprised two independent arms in East and West Bengal, Dhaka Anushilan Samiti and the Jugantar group.

   3. The Jugantar group led by Pulin Behari Das undertook the Barrah dacoity in 1908.

   Which of the following statements are correct?

   a) 1 and 2 only

   b) 2 and 3 only

   c) 1 and 3 only

   d) 1, 2 and 3

6. With reference to All India survey on migrant workers consider the following statements

   1. Labour bureau launched All India survey on migrant workers in April 2021

   2. Interstate migrant workmen regulation work 1979 subsumed into occupational safety health conditions code

Select the correct answer

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

7. Odessa port recently in news situated in which of the following region

a) Black Sea

b) sea of Marmara

c) sea of azov

d) Aegean Sea

8. With regard to 'BHASHINI', consider the following statements:

1) It aims to build a National Public Digital Platform for languages to develop services and products for citizens.

2) It is a part of the National Language Translation Mission.

Select the correct answer using the codes given below:

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

9. 'Minerals Security Partnership' can be recently seen in the news, is related to

a) Maritime security

b) Rare earth materials

c) Hydrocarbons and mineral oil

d) Major minerals supply chain

10. Consider the following statements regarding "Central Vigilance Commission"

1. Central vigilance commission was established as a statutory body

2. It is not an investigating agency

3. CVC is under the administration of Ministry of Home Affairs

Which of the above statements are incorrect?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1,2,3

11. Which of the following are the applications of diammonium phosphate?

1. Fertilizer

2. Fire retardant

3. Metal finishing

4. Wine production

Select the correct option from the following code

a) Only 1 statement is correct

b) Only 2 statements are correct

c) Only 3 statements are correct

d) All statements are correct

12. Biomining, which is recently seen in news is related to

a) Extraction of biomolecules

b) Extraction of metals from rocks or mine wastes

c) Extraction of Petroleum from seabed

d) Cleaning of oil spills

13. Consider the following statements regarding Carbon trade

1. Carbon trading is introduced in Kyoto protocol of UNFCCC
2. Carbon trading allows countries to sell unused excess emission units to other countries that are over their targets
3. Clean development mechanism and Joint implementation are two project-based mechanisms which feed carbon market.

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

14. 'Hasdeo Forests' related to coal mines recently seen in news is located in

a) Chattisgarh

b) Odisha

c) Nagaland

d) Rajasthan

15. Which of the following are the implications of Rupee Depreciation?

1) Widens CAD

2) Increases External Debt burden

3) Squeezes the purchasing power of people

Select the correct answer using the code given below:

a) 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

16. Garuda Shield exercise recently held is between which of the following two countries?

a) India and Indonesia

b) Australia and Japan

c) USA and Indonesia

d) USA and India

17. Arrange the following places from west to east:

1. Colombo
2. Hambandotta
3. Triconamalle

Select the correct answer using the code given below:

a) 1-2-3

b) 3-1-2

c) 2-3-1

d) 3-2-1

18. Which of the following agencies releases consumer confidence survey?

a) World Trade Organisation

b) Reserve Bank of India

c) World Economic Forum

d) Niti Aayog

19. Vajra Prahar exercise recently seen in news is between India and which country?

a) Bhutan

b) USA

c) Nepal

d) Maldives

20. Why is there a great concern about the 'microbeads' that are released into environment?

a) They are considered harmful to marine ecosystems.

b) They are considered to cause skin cancer in children.

c) They are small enough to be absorbed by crop plants in irrigated fields.

d) They are often found to be used as food adulterants.

21. With reference to Corbett national park consider the following statements

1. It is Asia's first national park

2. River Ganga is flowing through Corbett national park

3. Project tiger 1973 launched from Corbett national park

Select the correct answer

a) 1 and 2 only

b) 1 and 3 only

c) 2 and 3 only

d) 1,2,3

22. Consider the following statements

1) National Plan for Conservation of Aquatic Eco-systems (NPCA) is centrally sponsored scheme implemented by department of ocean development

2) Under National Plan for Conservation of Aquatic Eco-systems (NPCA), it identifies wetlands (includes lakes) in the country.

3) Wetlands (Conservation and Management) Rules, 2017 under the provisions of the Environment (Protection) Act, 1986 as regulatory framework for conservation and management of wetlands

Select the correct answer

a) 1 only

b) 2 and 3 only

c) 1and 2 only

d) 1, 2 and 3

23. In which of the following regions of India one can find slow loris in its natural habitat

a) Western ghats

b) North western India

c) North east India

d) Eastern Ghats

24. Recently declared Ramsar site Tampara lake situated in which of the following state

a) Odisha

b) Madhya pradesh

c) Maharashtra

d) Gujarat

25. Ashokan inscriptions in Afghanistan are written in which of the following scripts

a) Brahmi

b) Sharada

c) Kharosthi

d) Greek Aramaic

26. Consider the following statements regarding the "Chess Olympiad -2022:"

1) It is hosted in India for the first time and saw the largest participation in any Chess Olympiad.

2) International Chess Federation (FIDE) is recognised as a Global Sporting Organization by the International Olympic Committee.

3) Indian women's team won the country's first-ever medal in the women's section.

Choose the correct option:

a) One statement only

b) Two statements only

c) All three statements

d) None of the above

27. 'LANGYA' which is recently seen in news is related to

a) Defense

b) Zoonotic Virus

c) Social security scheme

d) None of the above

28. Consider the following regarding Open Network for Digital Commerce ONDC.

1. The ONDC platform lies in the middle of the interfaces hosting the buyers and the sellers

2. It is neither an aggregator application nor a hosting platform

Which of the above statements in /are correct?

a) 1 only

b) 2 only

c) 1 and 2 both

d) None of the above

29. Consider the following statements with reference to lions.

1. Asiatic lions slightly larger than African lions

2. At present Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion

Which of the above statements in /are correct?

a) 1 only

b) 2 only

c) 1 and 2 both

d) None of the above

30. Which of the following curve explains the relation between tax rate and tax revenue?

a) Lorenz Curve

b) Kuznet Curve

c) Laffer Curve

d) Philips Curve

31. Which of the following books is not written by Kalidas ?

a) Ritusanharam

b) Ratnavali

c) Kumarasambhavam

d) Raghuvansham

32. Consider the following statements regarding Aurobindo.

1. He faced the charges of treason for Kanpur Conspiracy.
2. One of his famous work was Savitri: A Legend and a Symbol
3. He was the journalist and editor of the newspaper BandeMataram

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

33. Consider the following statements regarding the chief justice of India.

1. His appointment is done through National Judicial Appointments Committee

2. He has a fixed tenure provided by law.

3. He can be removed on the grounds of proved misbehavior and incapacity

Which of the following statements are incorrect?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

34. With reference to 'Water Credit', consider the following statements:

1. It puts microfinance tools to work in the water and sanitation sector.
2. It is a global initiative launched under the aegis of the World Health Organization and the World Bank.
3. It aims to enable the poor people to meet their water needs without depending on subsidies.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

35. "Nipun mines" recently in news related to

a) Gold mines allocated by central government in Rajasthan and Andhra Pradesh

b) Monazite sand in Indian coastal states

c) Rare earth metals

d) indigenously developed anti-personnel mines

36. 'Udarashakti' exercise was held between India and

a) Bangladesh

a) Sri Lanka

b) Malaysia

c) Singapore

37. Which of the following pairs are correctly matched?

1) Remission - a reduction in the duration of the sentence imposed, while

the nature of the sentence remains untouched

2) Respite - a stay of the execution of a sentence for a temporary period

3) Reprieve - awarding a lesser sentence in place of one originally awarded due to some special fact,

4) Commutation - substitution of one form of punishment for a lighter form

a) 1 and 2 only

b) 1 and 4 only

c) 2 and 4 only

d) All 4 statements

38. "F - INSAS" , that is currently in news is related to

a) Satellite

b) Child Protection

c) Modernisation of army

d) Social Security

39. Consider the following statements regarding snail fish

1. It is found in Antarctica and it can survive in sub zero temperatures due the presence of anti freezing proteins in the blood.
2. It posses the character of biofluorescence

Select the correct answer from the following code

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

40. Consider the following statements regarding West Nile Virus.

1) West Nile virus (WNV) is a double-stranded RNA virus

2) West Nile virus can cause a fatal neurological disease in humans.

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

41. NIDAAN portal which is recently seen in news is related to

a) import export database

b) narcotic offenders database

c) grievance redressal

d) None of the above

42. Consider the following statements about Prevention of Money Laundering Act, 2002:

1. It covers only business firms and not private individuals which are covered already under TADA Act.
2. It is enacted on the lines of Vienna convention on Money laundering.

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

43. Consider the following statements about NFTs:

1) NFTs can have multiple ownership at the same time.

2) NFT owners can digitally sign their artwork and store specific information in their NFTs metadata.

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

44. In India, why are some nuclear reactors kept "IAEA Safeguards" while others are not?

a) Some use uranium and others use thorium

b) Some use imported uranium and others use domestic supplies

c) Some are operated by foreign enterprises and others are operated by domestic enterprises

d) Some are State-owned and others are privately-owned

45. Open Sea tale recently in news related to which of the following

a) Malware in Iran nuclear power plant

b) Market system for NFTs

c) Crypto asset investment holdings

d) Nuclear reactor accident in Ukraine

46. Consider the following statements

1. Excise duty is levied on goods produced and imported from outside the country
2. At present, excise duty applies to certain goods such as petroleum and liquor
3. Excise duty charges are also collected by state governments for alcohol and narcotics

Select the correct answer from the following code

a) 1 and 2 only

b) 1 and 3 only

c) 2 and 3 only

d) 1,2 and 3

47. With reference to the book "Desher Katha" written by Sakharam Ganesh Deuskar during the freedom struggle, consider the following statements :

1) It warned against the Colonial State's hypnotic conquest of the mind.

2) It inspired the performance of swadeshi street plays and folk songs.

3) The use of 'desh' by Deuskar was in the specific context of the region of Bengal.

Which of the statements given above are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

48. Consider the following statements

1. Co-lending is a set-up where banks and non-banks enter into an arrangement for the joint contribution of credit for priority sector lending
2. The scheduled commercial banks,

Non Banking Financial companies and Small Finance Banks are only allowed to participate in the colending

Select the correct answer from the following code

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

49. Zorawar recently seen in news is a/an

a) Aircraft carrier of the Indian Navy

b) Indigenously designed and developed Light Tank

c) Scorpene-class submarine

d) Unmanned Aerial Vehicle (UAV) developed by India's ADE (Aeronautical Development Establishment)

50. Malvinas island recently seen in the news, is located in which of the following?

a) North Pacific Ocean

b) South Atlantic Ocean

c) Indian Ocean

d) Near the equator

Answers:

1.	A	2.	B	3.	B	4.	D	5.	A	6.	C	7.	A	8.	C	9.	B	10.	D
11.	D	12.	B	13.	D	14.	A	15.	D	16.	C	17.	A	18.	B	19.	B	20.	A
21.	B	22.	B	23.	D	24.	A	25.	D	26.	C	27.	B	28.	C	29.	B	30.	C
31.	B	32.	B	33.	A	34.	C	35.	D	36.	B	37.	B	38.	C	39.	B	40.	B
41.	B	42.	B	43.	B	44.	B	45.	B	46.	C	47.	A	48.	A	49.	B	50.	B

FACT SHEET

GENERAL STUDIES – 2

Polity

- Only 323 cases related to hate speech were registered in 2014 and it had increased to 1,804 cases in 2020 => National Crime Records Bureau (NCRB) data.
- Nearly 4 lakh Indians have renounced their citizenship in the past 3 years & America emerging as the top choice. Over 1.6 lakh Indians renounced their citizenship in 2021 (highest in the past five years) => Ministry of Home Affairs data.

Problems with the judiciary in India

- The delay in the delivery of justice in the case of Lal Bihari who was officially declared dead in 1975. He then went on to prove that he was alive, facing various difficulties and was finally declared alive in 1994.
- As per the Transparency International report => Over 45% of people who availed judicial services between 2009 and 2010 had paid a bribe to the judiciary. The most common reason for paying the bribes was to "expedite the process".
- The Asian Human Rights Commission (2013) believes that for every ₹2 spent in a court as fees, a minimum of ₹ 1,000 is spent as bribes.
- As per the Freedom House's "Freedom in the World 2016 report for India" and the GAN Business Anti-Corruption Portal report => widespread corruption is seen in the lower strata of the judiciary as bribes are paid in exchange for favourable decisions.
- As per the National Judicial Data Grid => as of 2017, there were about 2 crore cases pending in the district courts of the county. Out of which over 20 lakh cases have been pending for over 10 years and nearly 40 lakh cases have been pending for 5 to 10 years.
- As of 2015, there were about 22% of the total strength was vacant in the posts of judicial officers in the subordinate courts.
- "It is in justice that the ordering of society is centred." - Aristotle

Social Issues

- "Global Report on Assistive Technology" released by WHO & UNICEF => Around 1 billion out of more than 2.5 billion people who need assistive products (wheelchairs, hearing aids etc.) continue to remain without adequate access to such assistive aids. This disproportionately affects low & middle-income countries, where affordability is a major barrier to access.
- Number of people with disabilities in India (visual, hearing, speech, locomotor and mental disabilities) -> around 26.8 million persons (2.21% of the total population) => 2011 census.
- India's GDP will witness the highest decline in South Asia due to learning losses for the young. India is among the countries with the longest school closures during the COVID-19 pandemic. Jobs for skilled labour are said to be reduced by 1%, and unskilled labour by 2% in India on account of school closures => Asian Development Bank (ADB).
- Pradhan Mantri Garib Kalyan Yojana (PMGKY) has reduced the probability of people consuming less food by 76% and cutting down on

the usage of utilities by 75%. Assistance under the PMGKY reduced the probability of borrowing money for 67% of all the respondents => Recent study on PMGKY.

International Relations

- USA surpassed China to become India's biggest trading partner in 2021-22. (Bilateral trade between the U.S. and India -> $119.42 billion; Between China and India -> $115.42 billion in 2021-22.)
- At present, the West Asian countries collectively account for about 16% of India's total bilateral merchandise trade and contribute about 60% of India's crude oil supplies.
- The share of the Gulf countries in India's total imports of crude oil has remained steady at about 60% over the last 15 years => Observer Research Foundation's (ORF) 'India's oil imports: Trends in diversification' paper, 2022.
- As the sweeter (low sulphur) grades of oil such as Brent are comparatively expensive, India's crude imports have gradually shifted towards the Oman and Dubai sour grades => Ministry of Petroleum and Natural Gas data.

GENERAL STUDIES – 3

Economy

- Indian Software Service market value is projected to reach $50 billion by 2030 => Report by venture capital firm, Bessemer Venture Partners.
- Electric passenger vehicles could comprise 30% and 75% of new vehicle sales in India by 2030 and 2050, respectively. In next 3 decades, ownership of four-wheelers could grow by 9 times => Study by Council on Energy, Environment and Water (CEEW).
- US Dollar accounts for 88.3% of global foreign exchange market turnover, followed by Euro, Japanese Yen & Pound Sterling. Rupee accounts for a mere 1.7% => Triennial Central Bank Survey.
- Russia has become the fourth-largest oil supplier to India. India is the world's third-largest oil consumer and importer.
- There has been a drop in the number of hours worked globally which indicates job losses. In fact, it has dropped to levels noted before the pandemic => International Labour Organisation (ILO).

Environment & Ecology

- 600 million people in India face high to extreme water stress; nearly 70% of water being contaminated; India ranked 120 out of 122 countries in the water quality index => NITI Aayog.
- Land degradation & desertification are taking place over 30% of our land => ISRO.
- India is the largest milk producer in the world, with a cattle population of 192.5 million in 2019 => 19th livestock census.
- By reaching net zero by 2050, India could boost annual GDP by as much as 7.3% ($470 billion) => High-level commission on the 'Getting Asia to Net Zero' report.

Science and Technology

- The World Health Organization (WHO) says that there were about two billion people with myopia in 2010 and by 2030, it will affect 3.3 billion people. (People

with myopia have difficulty in seeing distant objects)

Disaster Management Drought

- Frequency and duration of droughts around the world have increased by 29% since 2000. India's GDP was impacted by around 2 to 5% between 1998 and 2017 on account of severe droughts. Droughts between 1998 and 2017 have caused economic losses of about $124 billion worldwide => "Drought in Numbers, 2022" report by UNCCD.
- Weather, climate and water hazards have constituted about 50% of all disasters and 45% of all reported deaths since 1970 (9 out of 10 of these deaths have occurred in developing countries). In 2022, over 2.3 billion people are facing water stress and about 160 million children are exposed to severe and prolonged droughts. Drought is the second-worst disaster after flooding. Australia's megadrought in 2019-2020 played its role in the "megafires" which destroyed most of the habitat of threatened species => World Meteorological Organisation data.
- The share of plants impacted due to drought has more than increased by two times in the last four decades and nearly 12 million hectares of land are lost annually due to drought and desertification => Food and Agriculture Organisation report 2017.
- Drought conditions could result in the migration of about 216 million people by 2050 => World Bank.

1. *Project Bandhan was launched to tackle the pink bollworm menace in cotton. Pheromone traps and mating disruption are being used to restrict the pest population.*
2. *Coffee Board is planning to develop coffee varieties which are resistant to climate change with the help of ISRO. India is one of the very few countries, where coffee is grown under the tree shade.*
3. *Centre of Excellence on Satellite & Unmanned Remote Vehicle Initiative (CoESURVEI) has developed a software in collaboration with Bhabha Atomic Research Centre (BARC) which can automatically detect change on the ground, including unauthorised constructions and encroachments in a time series using satellite Imagery.*
4. *Har Ghar Tiranga campaign was launched by Prime Minister Narendra Modi which aims to change our relationship with the flag from formal/institutional to personal. It encourages people to bring our flag into our homes and hoist it to mark the 75th year of India's Independence.*
5. *PM Modi outlined his 'Panch Pran' Targets (Five Resolves) to make India a developed country in 25 years. They are,*
   - ✦ *Goal of Developed India*
   - ✦ *Remove any trace of the colonial mindset*
   - ✦ *Take Pride in our roots*
   - ✦ *Unity*
   - ✦ *Sense of duty among the citizens*
6. *The ICMR-Vector Control Research Centre (VCRC), Puducherry, has filed patent applications for two of its unique products - an artificial diet and a feeding device for mosquitoes reared in the laboratory. These products allow efficient and cost-effective mass-rearing of mosquitoes to investigate basic facets of their biology, and study vector-borne disease and measures to control it.*
7. *The Coin Yatra, undertaken by over 350 Dalits with two truckloads of ₹1 coin to the value of ₹20 lakh and a 1,000-kg brass coin with the faces of B.R. Ambedkar and the Buddha emblazoned on either side to donate for new parliament complex.*
8. *'Paalan 1000' National Campaign and Parenting App was launched recently. It focuses on the cognitive development of children in the first two years of their life. The app will provide practical advice to caregivers on what they can do in their everyday routine and will help clear doubts.*
9. *RMSI Cropalytics, a Noida-based agri-tech start-up has launched the first village-level crop map in the country. It shows the geolocation of sown acreage of the current cropping season in high resolution. It will be updated at the village level every Kharif and rabi season, covering paddy, soybean, maize, sugarcane and wheat. It will also enable multiple agri-tech applications, including remote farm monitoring, weather risk management, crop/ pest detection and yield estimation, and expedite digital adoption in the agri-*

ecosystem.

10. *Maharashtra Gene Bank (MGB) is a first-of-its-kind project in India to conserve genetic resources in Maharashtra including marine diversity, seeds of local crops, and animal diversity.*
11. *Under the Electricity Act, the provision of reliable quality and round-the-clock electricity to all consumers to meet full demand is a major aspect. The frequent power outages stand contrary to this provision.*
12. *Clofazimine is one of the three essential drugs in the Multi Drug Treatment of Multibacillary Leprosy (MB-MDT) cases, along with Rifampicin and Dapsone. Recently its shortage became a cause of concern.*
13. *The Union Environment Ministry has approved an exemption to the laws governing the regulation of coastal zones. It has paved the way for gas-powered plants to be set up on the Andaman and Nicobar Islands. The Island Coastal Zone Regulation (ICRZ), 2019, limits infrastructure development on vulnerable coastal stretches.*
14. *Chief Justice of India (CJI) said that speedy adjudication of disputes is the hallmark of a healthy democracy and denial of justice would lead to anarchy. He further added that the institution of the judiciary would be undermined soon as people look for extrajudicial mechanisms.*
15. *The Union government banning the export of wheat. While India's decision to ban wheat exports would be bad news for the global food security scenario, which has been badly affected by the Russia-Ukraine conflict, the decision makes sense given the domestic compulsions of ensuring sufficient domestic availability of wheat at affordable prices.*
16. *Union Cabinet approved amendments to the National Policy on Biofuels, 2018 which requires the fuel companies to increase the percentage of ethanol in petrol to 20% (E20) by 2025 (which was 2030 earlier).*
17. *India is all set to introduce a newly approved "made in India" TB infection skin test called 'c-TB'. This is said to be a cost-effective tool and will also be beneficial to other high-burden countries as well.*
18. *The Nuclear Power Corporation of India Limited has been helping the unemployed youth living near the Tarapur Atomic Power Station through its Advanced Knowledge and Rural Technology Implementation (AKRUTI) programme. The Corporation now plans to introduce a similar programme in the villages near the Kudankulam nuclear plant.*
19. *The Bhabha Atomic Research Centre is developing new, user-friendly and cost-effective technologies in the fields of nuclear science, radioisotopes, industry, health and agriculture and these technologies are being taught to the unemployed youth to make them entrepreneurs. Example: the AKRUTI programme's technology transfer of a cost-effective foldable dryer, which can be used for drying fruits, vegetables and fish.*
20. *The Bihar government has decided to permit the exploration of "India's largest" gold*

reserve in the Jamui district. According to the Geological Survey of India (GSI) survey, nearly 222.88 million tonnes of gold reserves (which accounts for about 44% of the total gold reserves in the country), including 37.6 tonnes of mineral-rich ore are present in the district.

21. *Some select villages in 25 districts of Bihar, Madhya Pradesh, Uttar Pradesh, Maharashtra, Haryana and Punjab are part of riskprone 151 clusters created by ICAR through its National Innovations in Climate Resilient Agriculture (NICRA) programme across the country, where technologies were demonstrated that helped minimise the negative impacts of heat waves.*
22. *Digital Door numbers project includes giving a unique ID to each property and integrating all information, such as water and electricity bills, property tax and garbage online, so that the department, as well as residents, can access it easily using a nine-digit alphanumeric code. The unique NDDN can be used for locating any address quickly. It provides a low-cost, easy-to-install security solution for buildings and houses which requires a reliable means of access control.*
23. *The Delhi Commission for Women (DCW) issued notice to Indian Bank over media that it has framed new guidelines preventing women who were more than three months pregnant from joining service after being selected through due process.*
24. *Revenue Secretary has acknowledged that inflation has contributed to higher GST collection. The higher inflation pushed further the rate rationalisation for the time being.*
25. *Sundar Committee (2007) on Road Safety said, => India lacked a technically competent investigation arm that could determine the cause of accidents.*
26. *In Satender Kumar Antil v. Central Bureau of Investigation (2022) case, the Supreme Court => expressed its unhappiness with the current state of India's criminal justice system. Violation of basic human rights & indiscriminate arrests are indicative of a colonial mindset and create the impression of India being a "police state".*
27. *In State of Rajasthan, Jaipur V. Balchandalias Baliay (1977) case, SC => "The basic rule is bail, not jail."*

TERMS IN NEWS

28. *The NSO defines a 'migrant' as an individual residing at the 'present place of enumeration (PoE) that is different from his/her usual place of residence (UPR)'. UPR is the place (village/town) where the person has been staying continuously for at least six months or has the intention to stay there continuously for six months or more.*
29. *Doctrine of discovery => which gave authority to European monarchies to seize 'new lands' meaning lands not inhabited by Christians. This legitimized the colonial grab.*
30. *Incurred Loss Approach: Under this, banks recognise loan losses only when evidence of a loss is apparent.*

31. *Expected Credit Loss Approach: If banks move to the ECL impairment framework, they will be required to recognise ECLs at all times, taking into account past events, current conditions and forecast information, and update the amount of ECLs recognised at each reporting date to reflect changes in an asset's credit risk.*

RELEVANT QUOTES

32. *"Any society that does not succeed in tapping into the energy and creativity of its youth will be left behind." - Kofi Annan.*
33. *"There comes a point where we need to stop just pulling people out of the river. We need to go upstream and find out why they're falling in." - Desmond Tutu.*
34. *"Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly." - Martin Luther King.*
35. *"We want the education by which character is formed, the strength of mind is increased, the intellect is expanded, and by which one can stand on one's own feet." - Swami Vivekananda.*
36. *"Strength does not come from the physical capacity. It comes from an indomitable will." - Mahatma Gandhi.*