

Current affairs

(NavIC) Technology

An autonomous regional satellite navigation system, also known as Indian Regional Navigation Satellite System (IRNSS), is developed by ISRO.

It has been designed to provide accurate position information service to users in India as well as the region extending up to **1500 km from its boundary**.

It will provide two types of services:

Standard Positioning Service (SPS): provided to all the users.

Restricted Service (RS): It is an encrypted service provided only to the authorized users.

The IRNSS System is expected to provide a position accuracy of better than 20 m in the primary service area.

Presently, it consists of **7 active satellites** located at a distance of approximately 36,000 Km.

3 satellites are in Geostationary Orbit (**GEO**).

4 satellites are in inclined **Geosynchronous Orbit (GSO)**.

Geostationary Orbit (GEO): Geostationary orbits fall in the same category as geosynchronous orbits, but it's parked over the equator. This one special quality makes it unique from geosynchronous orbits.

Weather monitoring satellites like GOES are in geostationary orbits because they have a constant view of the same area.

Geosynchronous Orbit (GSO): a geosynchronous orbit synchronizes with the rotation of the Earth.

India became the **fourth country in the world to have its independent regional navigation satellite system** recognized by the International Maritime Organization (IMO).

The other three countries that have its navigation systems are the US, Russia and China.

Some applications of Navic

Terrestrial, Aerial and Marine Navigation, Disaster Management, Vehicle tracking and fleet management, Integration with mobile phones, Precise Timing, Mapping and Geodetic data capture etc.

Significance

Revenue generation: It will bring healthy competition between various navigation services, and potentially significant revenues for the country.

Technological Innovation: NAVIC should also propel technological innovations and spin-offs that render India progressively less reliant on technological imports from the West and elsewhere.

India can combine NAVIC with GAGAN—its indigenous augmentation system—to service users on differential rates depending on the navigational precision they seek.

ISRO's GSLV rocket takes navigation satellite into transfer orbit successfully

This mission happened after the debacle during the F10 mission where there was an issue in the cryogenic stage, says ISRO Chairman S. Somanath congratulating the team responsible for the feat

Sangeetha Kandavel

CHENNAI

The Indian Space Research Organisation (ISRO) on Monday successfully placed the **NVS-01 navigation satellite**, weighing about 2,232 kg, into Geosynchronous Transfer Orbit.

The Geosynchronous Satellite Launch Vehicle (GSLV), which placed the satellite, lifted off with a thunderous roar precisely at 10.42 a.m. from the second launch pad at the **Satish Dhawan Space Centre SHAR, Sriharikota**.

"After a flight of about 19 minutes, the NVS-01 satellite was injected precisely into a Geosynchronous Transfer Orbit. Subsequent orbit-raising manoeuvres will take NVS-01 into the intended Geosynchronous orbit," ISRO said.

Talking from the control room, ISRO Chairman S.



GSLV rocket carrying navigation satellite NVS-01 lifts off from the Satish Dhawan Space Centre on Monday. B. JOTHI RAMALINGAM

Somanath congratulated the team responsible and said GSLV has placed the satellite in the precise orbit. He said, "This mission happened after the debacle during the F10 mission where there was an issue in the **cryogenic stage**. I'm very happy about the corrections and modifications that we have done and the lessons that we learnt to

make our cryogenic stage more reliable."

He also mentioned that NVS-01 is the first in the series of **five satellites**.

According to details provided by ISRO, the **GSLV-F12** is the **15th flight** of India's GSLV and the **9th flight** with **indigenous cryo stage**. This is the 6th operational flight of GSLV with an indigenous cryogenic

stage. The NVS-01 carried navigation payloads **L1, L5 and S bands**. Interestingly, for the first time, an indigenous atomic clock was flown in **NVS-01**.

Later during a press meet, the Chairman said the space agency is planning to launch weather satellite INSAT-3DS on the Geosynchronous Satellite Launch Vehicle (GSLV). Mr. Somanath said that ISRO will have to complete the navigation satellite constellation by launching four more NVS series satellites.

ISRO is also working on designing a new rocket that can carry much higher luggage and also upgrading the LVM3 rocket to lift up to 5.5 ton from the current 4 ton capacity.

Noting that the next few months will be busy, Mr. Somanath said in July ISRO will test the crew escape systems for the Gaganyaan project rocket.

Central vigilance commission

About:



Central Vigilance Commission is conceived to be the apex vigilance institution, free of control from any executive authority, monitoring all vigilance activity under the Central Government.

It advises various authorities in Central Government organizations in planning, executing, reviewing and reforming their vigilance work.

Background:

The CVC was set up by the Government in February 1964 on the recommendations of the Committee on Prevention of Corruption, headed by K. Santhanam.

The Parliament enacted Central Vigilance Commission Act, 2003 (CVC Act) conferring statutory status on the CVC.

It is an independent body which is only responsible to the Parliament.

It submits its report to the President of India.

Functions:

Exercise superintendence over the functioning of the Delhi Special Police Establishment (CBI) insofar as it relates to the investigation of offences under the Prevention of Corruption Act, 1988.

The CVC receives complaints on corruption or misuse of office and recommends appropriate action.

Following institutions, bodies, or a person can approach CVC: Central government, Lokpal and Whistle blowers.

CVC has no investigation wing of its own as it depends on the CBI and the Chief Vigilance Officers (CVO) of central organizations, while CBI has its own investigation wing drawing its powers from Delhi Special Police Establishment Act, 1946.

Composition:

It is a multi-member Commission consisting of a

- a. Central Vigilance Commissioner (Chairperson) and not more than
- b. 2 Vigilance Commissioners (Member).

Appointment of Commissioners:

They are appointed by the President of India the recommendations of a committee consisting of Prime Minister, Union Home Minister and Leader of the Opposition in Lok Sabha (if there is no Leader of Opposition then the leader of the single largest Opposition party in the Lok Sabha).

Term:

Their term is 4 years or 65 years, whichever is earlier.

Removal:

Removal is done by the President on grounds of bankruptcy, unsound mind, infirmity of body or mind, sentenced to imprisonment for a crime, or engages in paid employment or has acquired financial or other interest that might affect his judgment.

He can also be removed for proved misbehavior or incapacity if the Supreme Court inquiry finds him guilty.

They can also resign by writing to the President.

Women In Peacekeeping

What is UN Peacekeeping?

UN Peacekeeping began in 1948 when the UN Security Council authorised the deployment of UN military observers to the Middle East.

UN Peacekeeping helps countries navigate the difficult path from conflict to peace.

It deploys troops and police from around the world, integrating them with civilian peacekeepers to address a range of mandates set by the UN Security Council (UNSC) and the General Assembly.

What is Background of Indian Women in Peacekeeping Forces?

Background: For the first time in the history of UN peacekeeping, **India sent an all-female Formed Police Unit (FPU) to be deployed in Liberia in 2007 after a civil war ravaged the African nation.**

Intent: Recently, at the UN Security Council (UNSC), Indian officials called for more female participation in public life and the elimination of violence against them as a prerequisite for promoting lasting peace around the world.

Significance: In a profession that continues to be heavily dominated by men, and in a nation that is riddled with gender violence, these female police officers from India are **breaking stereotypes to represent their country on the world stage.**

What is the current status of Women in UN Peacekeeping forces?

Multi-Role: Women are deployed in all areas – police, military and civilian – and have made a positive impact on peacekeeping environments, including in supporting the role of women in building peace and protecting women's rights.

Current Numbers: According to the UN, in 2020, out of approximately 95,000 peacekeepers, women constitute 4.8% of military contingents and 10.9% of formed police units and 34% of justice and corrections government-provided personnel in UN Peacekeeping missions.

Global Effort Initiative: UN Police Division launched 'the Global Effort' to recruit more female police officers into national police services and into UN police operations around the world.

Why is it important to have women peacekeepers?

Better Access: Women peacekeepers can better access the population, including women and children - for example, by interviewing and supporting survivors of gender-based violence and violence against children - thereby generating critical information that would otherwise be difficult to reach.

Building Trust and Confidence: Women peacekeepers are essential enablers to build trust and confidence with local communities and help improve access and support for local women.

For example, by interacting with women in societies where women are prohibited from speaking to men.

UPSC PYQ - 2010

Which one of the following is not related to United Nations?

- (a) Multilateral Investment Guarantee Agency
- (b) International Finance Corporation
- (c) International Centre for Settlement of Investment Disputes
- (d) Bank for International Settlements

Ans: (d)

Phasing Out Coal

Context :-

India plans to **stop building new coal-fired power plants**, apart from those already in the pipeline, by removing a key clause from the final draft of its **National Electricity Policy** (NEP), in a major boost to fight climate change.

The government probably feels it would be a good idea to carry on with old plants even after they have completed 25 years of operation. Carrying on with generating units that are more than 25 years old is not a bad idea since the **station heat rate of well-maintained plants does not get adversely affected with age**. The advantages of carrying on with old plants are that the transmission links are already there and that the coal linkages are maintained.

Significance of the Move

It shows India's commitment to fight climate change and reduce greenhouse gas emissions.

India's proposed coal power capacity is the highest after China. Both India and China account for about 80% of all active coal projects.

Aligns with the global trend of phasing out coal and shifting to cleaner sources of energy.

Encourages the development of renewable energy (RE) and energy efficiency.

The government plans to achieve an installed renewable energy capacity of 500 GW by 2030 and net zero carbon neutrality by 2070.

Allowing new coal power plants to commence construction will not just send mixed signals and distract the market from its ambitious RE targets - it will also jeopardise the growth of the renewables industry.

Improves air quality and public health by reducing pollution from coal combustion.

Reduces India's dependence on coal imports and enhances energy security.

Reducing the cost of electricity generation

There are 33 "zombie" coal plant proposals which are either seeking or have received permits but are yet to start construction.

These power plants will be 2 to 3 times more expensive than renewable energy (RE) options.

How much of India's Electricity Generation Relies on Coal?

India is highly dependent on coal for electricity generation. Nearly 60% of total electricity generated in India is from coal and it is the main source of the nation's greenhouse gas emissions.

Non-fossil sources accounts for about 40%.

The electricity generation from coal-based power plants in 2022-23 saw an increase of 8.87% over the previous year.

The electricity generation target for 2023-24 was fixed at 1750 billion units, of which more than 75% is expected from thermal sources, mainly coal.

Why should India Reduce dependence on Coal?

Reduction of Pollution:

Coal is a highly polluting fossil fuel that contributes significantly to air pollution and greenhouse gas emissions.

Burning coal releases large amounts of **carbon dioxide, sulphur dioxide, nitrogen oxides, and particulate matter**, which contribute to climate change, smog, acid rain, and respiratory diseases , cardiovascular problems, and even premature death.

Coal is the single largest source of carbon dioxide emissions globally. As a **signatory to the Paris Agreement, India has committed to reducing its greenhouse gas emissions.**

A Way to Clean Energy Production: India possesses abundant renewable energy resources, including solar, wind, hydro, and biomass. By shifting away from coal and promoting renewable energy sources, India can tap into its vast potential for clean energy production.

Addressing Water Scarcity: **Coal-fired power plants require large quantities of water for cooling and other processes.** The extraction and consumption of water for coal mining and power generation can lead to water scarcity and ecological degradation, particularly in regions already facing water stress.

Reduce Imports: India has to rely **heavily on Coal imports**, reducing dependence on Coal would save lakh of Forex reserves.

Job Creation: The transition from coal to renewable energy can create **numerous economic opportunities.** The renewable energy sector offers potential for job creation, innovation, and technological advancements.

Adhering to Global commitments: India's transition away from coal aligns with global efforts to combat climate change and transition to a low-carbon economy. By demonstrating a commitment to reducing coal dependence, India can enhance its international standing, contribute to global sustainability goals, and attract investment in renewable energy technologies.

How can India Reduce its Dependence on Coal for Electricity Generation?

Increasing Renewable Energy Capacity: India has set a target of increasing its renewable energy capacity to **500 gigawatts by 2030**, which would help reduce the share of coal in the power mix. Renewable energy sources such as solar, wind, hydro and biomass can provide clean, affordable, and reliable electricity for India's growing population and economy.

Improving Energy Efficiency: India can save energy and reduce emissions by improving the efficiency of its power plants, industries, buildings, appliances and vehicles. Energy efficiency measures can also lower electricity bills, create jobs and enhance competitiveness.

Phasing out Old and Inefficient Coal Plants: India can retire its old and inefficient coal-fired power plants that are costly to run and maintain and replace them with cleaner and cheaper alternatives.

Diversifying Energy Sources: India can reduce its reliance on coal by diversifying its energy sources and increasing the share of natural gas, nuclear and hydro power in its energy mix. These sources can provide flexibility and stability to the grid and complement the variable output of renewable energy.

Challenges in Switching to Renewable Energy

The **poor financial condition of power distribution companies (DISCOMs)**, most of which are **owned by state governments**. DISCOMs are the main buyers of renewable energy, but they often delay payments to generators or curtail their power due to low demand or high costs. This affects the viability and bankability of renewable energy projects.

The lack of adequate grid infrastructure and storage capacity to integrate variable renewable energy sources, such as solar and wind, into the power system. This requires

investments in transmission lines, substations, smart meters, demand response and battery storage to ensure reliability and stability of supply.

The lack of financial intermediaries and instruments to mobilize capital for renewable energy projects, especially from domestic sources. India relies heavily on foreign financing for its renewable energy sector, which exposes it to currency risks and policy uncertainties.

The lack of investor understanding and awareness of the opportunities and benefits of renewable energy, especially among small and medium enterprises, households and rural communities.

Daily Mains Question

Q- Discuss the need, challenges and opportunities of phasing out coal for India's energy security and climate action.(250 Words)

प्र- भारत की ऊर्जा सुरक्षा और जलवायु कार्रवाई के लिए कोयले को चरणबद्ध तरीके से समाप्त करने की आवश्यकता, चुनौतियों और अवसरों पर चर्चा करें। (250 शब्द)

Hysterectomy

Context :- Concerned about the high risk faced by poor and less-educated women, especially in rural areas, who undergo unjustified hysterectomies, the Ministry of Health and Family Welfare, Government of India has initiated measures to address this issue.

What is Hysterectomy?

About:

A hysterectomy is a surgical procedure that involves the removal of the uterus (womb), the organ in a woman's body where a baby develops during pregnancy.

Types:

When only the uterus is removed, it is called a partial hysterectomy.

When the uterus and cervix are removed, it is called a total hysterectomy.

When the uterus, cervix, part of the vagina, and a wide area of ligaments and tissues around these organs are removed, it is called a radical hysterectomy.

Indications for Hysterectomy in India:

Hysterectomy is performed in India for **gynecological conditions like fibroids** (non-cancerous growths that develop in or around the womb), **endometriosis** (disease in which tissue similar to the lining of the uterus grows outside the uterus), abnormal bleeding, and pelvic inflammatory disease, when other treatments fail.

It is also utilized as part of cancer treatment to remove cancerous tissues and in cases of severe, unresponsive pelvic pain.

Issues Associated with Hysterectomy in India

Increase Hysterectomies in Younger Women:

The recent Supreme Court judgment in [Dr. Narendra Gupta vs Union Of India, 2023](#) highlighted that in developed countries, hysterectomies are typically performed on premenopausal women aged 45 and above.

However, community-based studies in India have shown an increasing number of hysterectomies among younger women, ranging from 28 to 36 years old.

NFHS Data:

According to the most recent **National Family Health Survey (NFHS) -5 empirical data, 3% of women aged 15-49 have had a hysterectomy.**

The prevalence of hysterectomy is the highest in **Andhra Pradesh (9%)**, followed by **Telangana (8%)**, and lowest in **Sikkim (0.8%)** and **Meghalaya (0.7%)** among women aged 15–49.

The prevalence of hysterectomy was highest in Southern region, i.e., 4.2%, which was also greater than the national prevalence, followed by Eastern part of India (3.8%).

On the other hand, the lowest prevalence was observed in the Northeast region, i.e., only 1.2%

Unnecessary Hysterectomies:

A public interest litigation (PIL) filed in 2013 highlighted the issue of "unnecessary hysterectomies".

The PIL revealed that in the states of **Bihar, Chhattisgarh, and Rajasthan, women were subjected to hysterectomies** that were deemed unnecessary, endangering their health.

Private hospitals were found to be involved in performing these unnecessary hysterectomies. More than two-thirds (70%) of women who have undergone a hysterectomy had the operation in a private health facility.

Misuse of the procedure was also observed, with healthcare institutions exploiting it to claim higher insurance fees under various government healthcare schemes.

Efforts to Address the Issue

Supreme Court Direction:

In response to the PIL, the Supreme Court directed states and union territories to adopt the health guidelines formulated by the Centre to monitor and prevent unnecessary hysterectomies. The implementation of these guidelines was mandated within a three-month timeframe.

There has been a serious violation of the fundamental rights of the women who underwent unnecessary hysterectomies.

The SC in **Dr. Narendra Gupta vs Union Of India 2023 acknowledged that the right to health is an intrinsic part of the right to life under Article 21 of the Constitution.** Life, to be enjoyed in all its diverse elements, must be based on robust conditions of health.

SC also urged an action plan to tackle the problem including suggestions to create national, state and district-level hysterectomy monitoring committees and the inauguration of a grievance portal.

Health Ministry Guidelines:

In 2022, the Health Ministry issued guidelines aimed at preventing unnecessary hysterectomies. States were instructed to comply with these guidelines to ensure appropriate use of the procedure.

Recently, the ministry has directed the states to share data on the hysterectomies performed by medical institutions

Compulsory audits for all hysterectomies were also advised, similar to the existing audits conducted for maternal mortality.



ASEAN Member Countries



TRICK TO REMEMBER ASEAN COUNTRIES

TV CLIP OF MBBS

Other Satellite Navigation Systems

Satellite Navigation Systems	Key Points
Global Positioning System (GPS)	<ul style="list-style-type: none">Initiated in 1978 and achieved global coverage in 1995 and is owned by the United States government and operated by the United States Air Force.It consists of 24 to 32 medium Earth orbit satellites in six different orbital planes.
Global Navigation Satellite System (GLONASS)	<ul style="list-style-type: none">Operated by Roscosmos, a state corporation responsible for the space flight and cosmonautics program for the Russian Federation.It became operational in 1982 and achieved global coverage in 1996, and again in 2011 (after the system had fallen into disrepair).It has full global coverage with 24 satellites.
GALILEO	<ul style="list-style-type: none">It was initiated in 2005 by the European Space Agency and projected to provide global coverage by 2020 with 30 satellites.
Quasi-Zenith Satellite System (QZSS)	<ul style="list-style-type: none">It is operated by the Japanese government.It is a four-satellite regional time transfer system and enhancement for GPS covering Japan and the Asia-Oceania regions.Its services have been available on a trial basis since January 2018.

Sinkaku islands





Is life possible in mars?

NASA says highly unlikely.

What are Exoplanets?

About:

Exoplanets are **planets that orbit other stars and are beyond our solar system**. The first confirmation of detection of exoplanets occurred in 1992.

According to NASA, to date, more than **5,000 exoplanets** have been discovered.

Scientists believe that **there are more planets than stars as each star have at least one planet orbiting it.**

Exoplanets come in a host of different sizes. They can be gas giants bigger than Jupiter or as small and rocky as Earth. They are also known to have different kinds of temperatures — boiling hot to freezing cold.

Discovery:

Exoplanets are very hard to see directly with telescopes. They are hidden by the bright glare of the stars they orbit.

So, astronomers use other ways to detect and study exoplanets such as looking at the effects these planets have on the stars they orbit.

What is TOI
4603 currently
seen in the
news?

Scientist team discovers new exoplanet with mass 13 times that of Jupiter

Hemanth C.S.

BENGALURU

A new **Jupiter-size** exoplanet with the highest density known till this date and mass **13 times** than that of **Jupiter**, has been discovered by an international team of scientists led by Prof. Abhijit Chakraborty at the **Exoplanet Research Group of the Physical Research Laboratory (PRL)**, Ahmedabad.

An exoplanet is any planet beyond the solar system and the one discovered by scientists from India, Germany, Switzer-

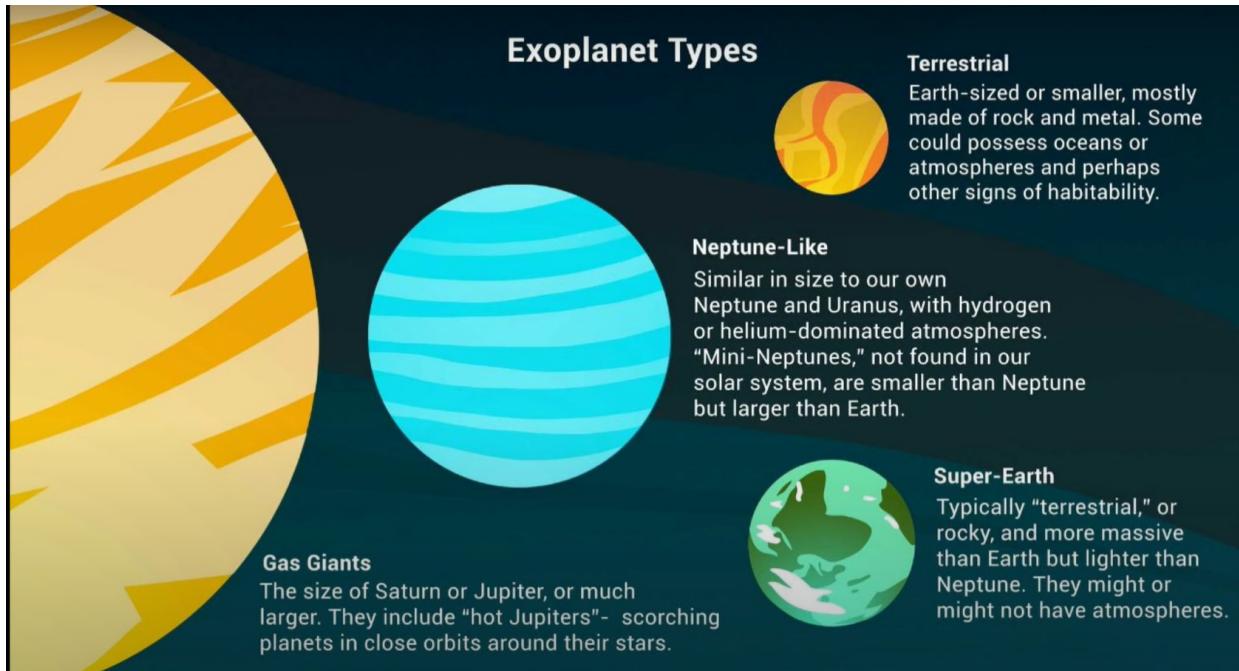
land and the U.S. is with a density of 14 g/cm^3 .

Massive giant exoplanets are those having mass greater than four times that of Jupiter.

The Indian Space Research Organisation (ISRO) said that the discovery of this massive exoplanet was made using the indigenously made PRL Advanced Radial-velocity Abu-sky Search spectrograph (PARAS) at the 1.2 m telescope of PRL at its Gurushikhar Observatory in Mt. Abu by measuring the mass of the planet precisely. The newly discovered exoplanet was

found around the star called **TOI4603** or **HD 245134**. NASA's The Transiting Exoplanet Survey Satellite initially declared TOI4603 as a possible candidate to host a secondary body of unknown nature.

"What sets this discovery apart is that the planet falls into the transition mass range of massive giant planets and low-mass brown dwarfs with masses ranging from 11 to 16 times the mass of Jupiter. Only fewer than five exoplanets are currently known in this mass range so far," the ISRO said.



Shanghai Cooperation Organization (SCO)

About:

SCO is a **permanent intergovernmental international organization**.

It's a Eurasian political, economic and military organization aiming to maintain peace, security and stability in the region.

It was created in 2001.

The SCO Charter was signed in 2002, and entered into force in 2003.

Genesis:

Prior to the creation of SCO in 2001, **Kazakhstan, China, Kyrgyzstan, Russia and Tajikistan were members of the Shanghai Five.** KCKRT

Shanghai Five (1996) emerged from a series of border demarcation and demilitarization talks which the four former Soviet republics held with China to ensure stability along the borders.

Following the accession of **Uzbekistan** to the organization in 2001, the Shanghai Five was renamed the SCO.

India and Pakistan became members in 2017.

On 17th September, 2021, it was announced that Iran would become a full member of the SCO.

Objectives:

Strengthening mutual trust and neighborliness among the member states.

Promoting effective cooperation in -politics, trade & economy, research & technology and culture.

Enhancing ties in education, energy, transport, tourism, environmental protection, etc.

Maintain and ensure peace, security and stability in the region.

Membership:

Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, Pakistan and Iran.

How to remember?

TRUCK 2 INDIA

Shanghai Cooperation Organization

The Shanghai Cooperation Organization (SCO) is a regional intergovernmental security alliance involving Russia, China and four Central Asian states



Milestones

— 1996 —

Foundation of the Shanghai Five, the SCO predecessor

— 1999 —

Foundation of the Bishkek Group to counter border criminality

— 2001 —

Uzbekistan joins SCO

— June 15, 2001 —

Shanghai Cooperation Organization Founding Declaration signed

— 2008 —

Iran submits official application for full-right SCO membership

Basic documents

— 2001 —

Shanghai Convention on the Struggle against Terrorism, Separatism and Extremism

— 2002 —

SCO Charter

— 2002 —

Regional Anti-Terrorist Structure (RATS) Founding Agreement

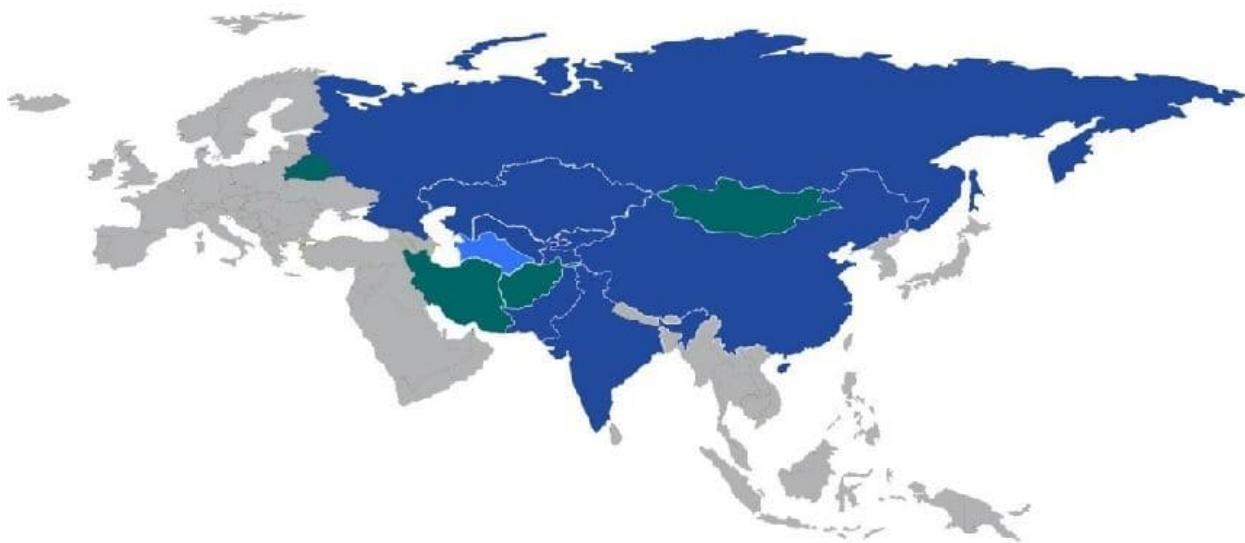
Goals and Objectives

- Strengthening of mutual trust and good-neighborly policies between member states
- Promotion of effective cooperation in politics, trade, economics, science, technology, and culture, as well as education, energy, transport, tourism and environmental protection
- Jointly ensuring peace, security and stability in the region
- Advancement to a new democratic, fair and rational global political and economic order

SCO Structure

- Council of Heads of State
- Council of Heads of Government
- Council of Foreign Ministers
- Meetings of Heads of Ministries and Departments
- Council of National Coordinators
- Regional Anti-Terrorist Structure

Russian Foreign Ministry
Ambassador-at-Large Vitaly Vorobyov is the Presidential Envoy for SCO Affairs



Central asian member states of SCO	Other member states of SCO	Observer states of SCO
Kazakhstan	China	Afghanistan
Kyrgyzstan	India	Belarus
Tajikistan	Pakistan	Iran
Uzbekistan	Russia	Mongolia

Structure:

Heads of State Council – The supreme SCO body which decides its internal functioning and its interaction with other States & international organisations, and considers international issues.

Heads of Government Council – Approves the budget, considers and decides upon issues related to economic spheres of interaction within SCO.

Council of Ministers of Foreign Affairs – Considers issues related to day-to-day activities.

SCO Secretariat – **Based in Beijing** to provide informational, analytical & organizational support.

Official language:

The **official working language** of the SCO Secretariat is **Russian and Chinese**.

Cambodian king visits India



Cambodian King Norodom Sihamoni meeting President Droupadi Murmu and Prime Minister Narendra Modi. SUSHIL KUMAR VERMA

India keen to boost ties with Cambodia'

Press Trust of India

NEW DELHI

President Droupadi Murmu on Tuesday said India is keen to further elevate its defence relations with the Southeast Asian country.

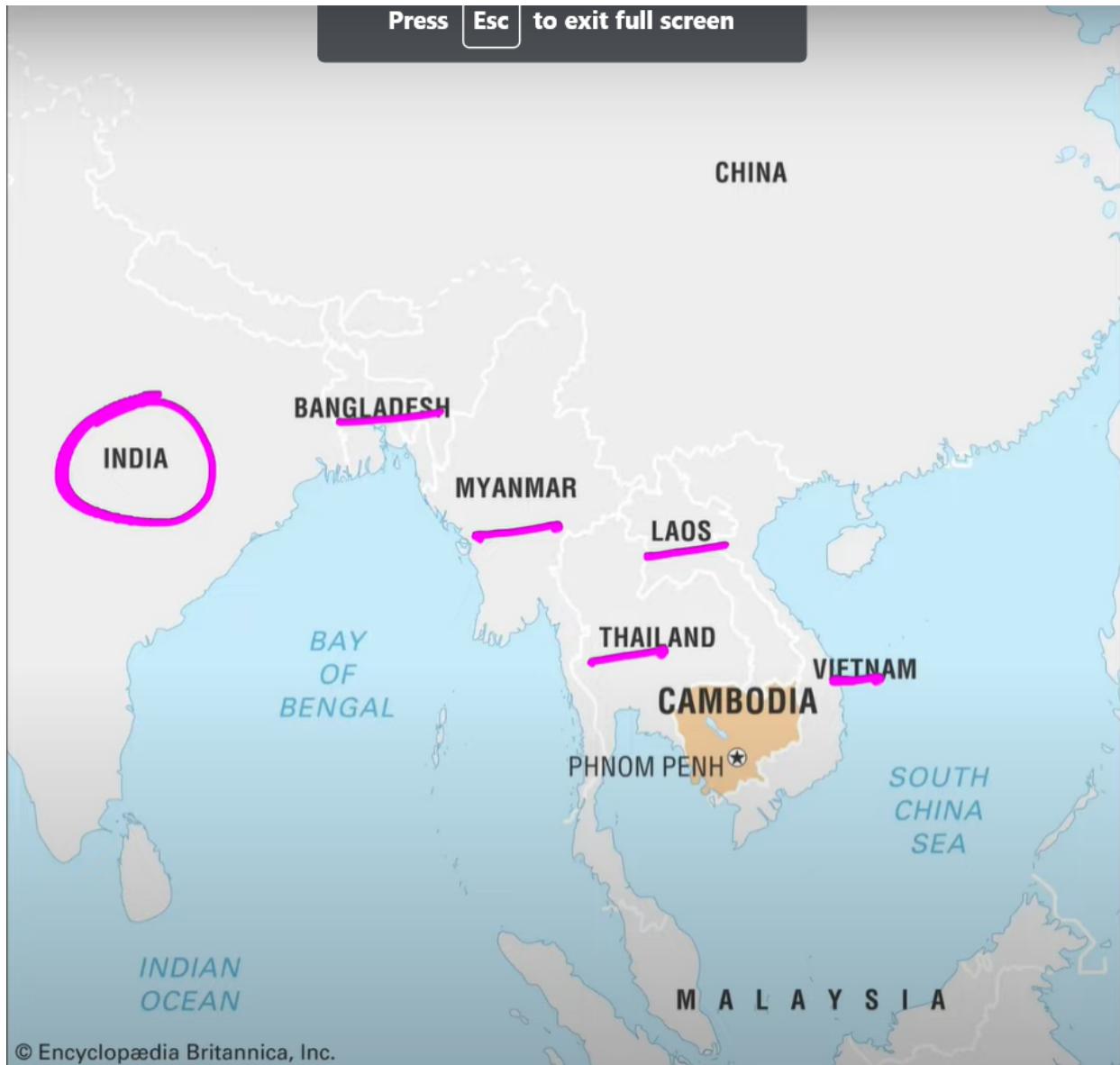
Cambodia. She said India is keen to further elevate its defence relations with the Southeast Asian country.

Welcoming King Sihamoni on his first visit to India, she said his visit demonstrates the importance that Cambodia attaches to its ties with India as the two countries share a rich and vibrant relationship.

"We value our shared history and consider Cambodia as our civilisational sister country," Ms. Murmu said.

Welcoming Preah Bat Samdech Preah Boromneath Norodom Sihamoni, the King of Cambodia, at Rashtrapati Bhavan, Ms. Murmu said there is great potential for further growth in trade and investment between India and





Cambodia:

Cambodia, country on the Indochinese mainland of Southeast Asia.

Its capital is Phnom Penh.

It is bordered to the west and [northwest by Thailand](#), to the [northeast by Laos](#), to the [east and southeast by Vietnam](#) and to the [southwest by the Gulf of Thailand](#).

The two dominant hydrological features of Cambodia are the **Mekong River** and the **Tonle Sap (Great Lake)**.

Topography:

The Elephant Mountains and Cardamom Mountain of the southwest and western regions; the Dangrek Mountains of the North adjoining of the Korat Plateau of Thailand and Rattanakiri Plateau and Chhlong highlands on the east merging with the Central Highlands of Viet Nam.

Conservation and restoration of the ancient temples of **Angkor Wat**, **Ta Prohm** and **Preah Vihar** are being carried out under India's funding.

China sends its astronauts to space

China's Tiangong Space Station

Tiangong Space Station

The Tiangong space station is a Chinese space station being built in **low Earth orbit** between **340 and 450 kilometers above the earth**.

It is part of China Manned Space Program and is the country's first long-term space station.

China is going to operationalize its new Tiangong multi-module space station for at least ten years.

China launched an unmanned module named "**Tianhe**", or "Harmony of the Heavens" for its permanent space station in 2021 that it plans to complete by the end of 2022. Tianhe core module is the first module to launch the Tiangong space station module.

They were launched into the designated **orbit by the Shenzhou-14 spacecraft**

What is the Importance of this Launch for China?

China is only the **third country** in history to have put both astronauts into space and to build a space station, after the Russia and the US.

The China Space Station (CSS) is also expected to be a competitor to the International Space Stations.

The International Space Station (ISS) Is a collaborative project of several countries.

The ISS is the most complex international scientific and engineering project in history and the largest structure humans have ever put into space.

What are India's Space Station Programmes?

About:

India is planning to launch its **own space station by 2030**, joining the league of US, Russia, and China to an elite space club.

The Indian space station will be much smaller (mass of 20 tonnes) than the International Space Station and will be used for carrying out microgravity experiments (not for space tourism).

It will orbit Earth at an altitude of **around 400 km.**

ISRO (Indian Space Research Organization) is working on a space docking experiment (Spandex), a technology that is crucial for making the space station functional.

Space docking is a technology that allows transferring humans from one spacecraft to another

Significance:

Space stations are essential for collecting meaningful scientific data, especially for biological experiments.

Provide platforms for greater number and length of scientific studies than available on other space vehicles. (as Gaganyaan will take humans and experiments in microgravity for a few days only).

Space stations are used to study the effects of long-term space flight on the human body

Unboxing the 'export turnaround' in India's toy story

India has recently turned a net exporter of toys, during 2020-21 and 2021-22, ending decades of import dominance. Between 2018-19 and 2021-22, toy exports increased from \$109 million (\$812 crore) to \$177 million (₹1,237 crore); imports declined from \$371 million (₹2,593 crore) to \$110 million (₹819 crore), official data show. These facts are indisputable. They can be cross-verified by mirror images of trade figures from corresponding importing or exporting countries.

The achievement is widely credited to the 'Make in India' initiative launched in 2014, and related policies, official press releases claim. Moreover, in 2020, the Prime Minister Narendra Modi reportedly spoke of promoting toy manufacturing, in his talk show, 'Mann ki Baat'. What can explain such a sharp turnaround in the toy trade? Does it represent a sustained rise in investment, output and efficiency gains nurtured by policy reforms? Or is it a short-term outcome of protectionism and COVID-19 pandemic-related global disruptions?

More imports than exports

India's toy industry is minuscule. In 2015-16 (the latest available figures combined for the organised and unorganised sectors), the industry had about 15,000 enterprises or establishments, producing toys valued at ₹1,688 crore using fixed capital of ₹626 crore at current prices and employing 35,000 workers. Registered factories – those employing 10 or more workers on a regular basis – accounted for 1% of the number of factories and enterprises, employed 20% of workers, used 63% of fixed capital, and produced

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custom duty on toys (HS Code-9503) tripled from 20% to 60% in February, 2020. Numerous non-tariff barriers were imposed as well such as production registration orders and safety regulation codes, which contributed to import contraction (Press Information Bureau release July 5, 2022).

The question, therefore, to ask is: do net exports represent sustainable improvements in industrial capability and performance contributing to import contraction, or are these the mere short-term effects of protectionist measures? The question merits attention as toy making, a labour-intensive industry, has all along played a vital (and perhaps outsized) role in policy discourse.

The Asian scene versus India

Historically, Asia's successful industrialising nations promoted toy exports for job creation, starting with Japan about a century ago, China since the 1980s, and currently Vietnam following in their footsteps. However, India, followed an inward-oriented industrial policy in the Planning-era, which sheltered domestic production by providing a "double protection" – by imports tariffs and reservation of the product for exclusive production in the small-scale sector – known as the "reservation policy". The outcome? Toy manufacturing remained stagnant, archaic and fragmented, even as imports of modern, safe, and branded toys boomed. The industry is emblematic of all that was wrong with misguided industrial policy, as many critics of India's industrial policy have contended.

In 1997, in the wake of liberal reforms, the

particular, we looked into how more recent policy initiatives, such as 'Make in India', have a bearing on the toy industry.

We found that the annual value of output and fixed investment at constant prices (net of inflation) after peaking in 2007-08, have trended downwards with considerable fluctuations (except for 2019-20). Apparently, there is no evidence of 'Make in India' positively affecting these indicators on a sustained basis. The output of the informal or unorganised sector shrank though it continues to account for the majority of establishments and employment.

Despite early positive trends, industry de-reservation (though it helped formalise the industry), failed to sustain output, investment, and productivity growth after 2007-08. Contrary to popular perception and official claims, 'Make in India' had a negligible effect in strengthening toy production and exports on a sustained basis.

10

Too premature to claim success

As the reported turnaround in toy exports is based on data from just two recent years, and during the COVID-19 pandemic, it is perhaps too premature to claim policy success. The potential for sustaining net exports appears slim as the industry has hardly made sustained investment to boost output and exports.

To sum up, India's export surplus in toys during 2020-21 and 2021-22, is a welcome change. However, it seems to be driven by a rise in protectionism, and the exceptional circumstances of the COVID-19 pandemic. The turnaround does not seem to be the outcome of strengthening domestic investment and

Unboxing the 'export turnaround' in India's toy story

India has recently turned a net exporter of toys, during 2020-21 and 2021-22, ending decades of import dominance. Between 2018-19 and 2021-22, toy exports increased from \$109 million (\$812 crore) to \$177 million (₹1,237 crore); imports declined from \$371 million (₹2,593 crore) to \$110 million (₹819 crore), official data show. These facts are indisputable. They can be cross-verified by mirror images of trade figures from corresponding importing or exporting countries.

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India hardly figures in the global toy trade, with its exports at a mere half-a-percentage point. Between 2014-19, the Indian toy industry witnessed negative productivity growth. So, what explains the sharp turnaround in toy trade in just three years? Imports contracted as the basic

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India turning a net exporter of toys is mainly due to rising protectionism and less, perhaps, on account of expanding domestic capabilities

In 1997, in the wake of liberal reforms, the reservation policy was abolished. Expectedly, new firms entered the organised sector, but only for a while, and productivity growth improved. But the unorganised sector languished with job losses, even as a majority of workers remained there.

In a recent study ('India's Toy Industry: Production and Trade since 2000', *Economic and Political Weekly*, May 6, 2023) we re-examined the industry output and export performance, since about 2000, with a new firm-level dataset from the formal and informal sectors synchronised with a four-digit product-level trade data. In

particular, we looked into how more recent policy initiatives, such as 'Make in India', have a bearing on the toy industry.

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INS Mormugao

About INS Mormugao:

- It is an indigenous guided missile destroyer of the Indian Navy.
- It was named after the historic port city of Goa on the West coast.
- Mormugao coincidentally undertook her first sea sortie on **December 19, 2021, when Goa celebrated 60 years of liberation from Portuguese rule.**

Features:

- It measures 163 m in length, and 17 m in breadth.
- Displacement: 7,400 tonnes
- The ship is propelled by **four powerful Gas Turbines, in a Combined Gas and Gas (COGAG) configuration.**
- It is capable of achieving speeds in excess of 30 knots.
- The ship has enhanced **stealth features** resulting in a reduced Radar Cross Section (RCS).
- The ship is fitted with a modern Surveillance Radar which provides target data to the gunnery weapon systems of the ship.
- It is packed with sophisticated weapons and sensors such as **Surface to Surface Missile and Surface to Air Missiles.**
- Its Anti-Submarine Warfare capabilities are provided by the indigenously developed Rocket Launchers, Torpedo Launchers and the ASW helicopters.
- It is equipped to fight under nuclear, biological and chemical (NBC) warfare conditions.

Tribal health of India

Why in News?

Recently, the healthcare challenges faced by tribal communities in India have come into focus. Despite India's remarkable achievements, such as emerging as the world's 5th-largest economy and its contribution to the global vaccination drive, tribal communities continue to experience significant healthcare disparities.

- As India celebrates its accomplishments at India@75, it is crucial to address the urgent need for equitable healthcare access for tribal communities.

What is the Status of Tribal Communities in India?

• Demographic Status:

- Tribal communities in India constitute a significant portion of the country's population, accounting for approximately 8.9%.
- Out of the total Schedule Tribe population, approximately 2.6 million (2.5%) belong to "Particularly Vulnerable Tribal Groups" (PVTGs) known as the "Primitive Tribes" - the most disadvantaged of all the Schedule Tribe communities.
- They are spread across various states, with higher concentrations in states like Madhya Pradesh, Maharashtra, Odisha, Chhattisgarh, Rajasthan, the NER states and the Andaman & Nicobar Islands.

• Cultural Status:

- Tribal communities in India have their own rich and diverse culture, language, and traditions.

• Related Constitutional and Statutory Provisions:

- Certain tribal communities in India are recognized as Scheduled Tribes (STs) under Article 342 of the Constitution of India.
- They are entitled to special provisions and safeguards for their social, economic, educational, and political development.
- Their interests are safeguarded by various laws and policies such as the 5th and 6th Scheduled areas, Forest Rights Act 2006, and the PESA Act 1996.

- They also have representation in the Parliament and State Legislatures through reserved seats.
- Draupadi Murmu is India's first tribal President.

•Developmental Status:

- Tribal communities in India face multiple challenges and disadvantages in terms of poverty, illiteracy, malnutrition, health, employment, infrastructure, and human rights.
- They lag behind the national average on various indicators of human development such as income, education, health, sanitation, and gender equality.
- They also face discrimination, exploitation, displacement, and violence from non-tribal people and institutions. They have limited access to resources and opportunities for their empowerment and participation.

What are the Main Tribal Health Issues?

•Malnutrition:

- Tribal people don't get enough food or the right kind of food to stay healthy. They suffer from hunger, stunting, wasting, anemia, and lack of vitamins and minerals.

•Communicable Diseases:

- Tribal people are more likely to catch infectious diseases such as malaria, tuberculosis, leprosy, HIV/AIDS, diarrhoea, respiratory infections, and diseases spread by insects or animals due to several factors like poor sanitation and hygiene, and limited access to healthcare.

Non-Communicable Diseases:

- Tribal people are also at risk of getting chronic diseases such as diabetes, hypertension, cardiovascular diseases, cancer, and mental disorders.
- According to a study, about 13% of tribal adults have diabetes and 25% have high blood pressure.

•Addictions:

- The above-mentioned diseases can be caused by factors such as tobacco use, alcohol consumption, and substance abuse.
- More than 72% tribal men 15–54 years of age use tobacco and more than 50% consume alcohol against 56% and 30% non-tribal men, respectively

What are the Challenges in Tribal Health?

•Lack of Infrastructure:

- Inadequate healthcare facilities and infrastructure in tribal areas.
- Insufficient access to clean water and sanitation facilities.

•Shortage of Medical Professionals:

- Limited presence of doctors, nurses, and healthcare professionals in tribal regions.
- Difficulty in attracting and retaining skilled healthcare personnel in remote areas.
- Imbalance in the distribution of healthcare professionals, with a concentration in urban areas.

•Connectivity and Geographic Barriers:

- Remote locations and difficult terrain hinder access to healthcare services.
- Lack of proper roads, transportation facilities, and communication networks.
- Challenges in reaching tribal communities during emergencies and providing timely medical assistance.

• Affordability and Financial Constraints:

- Limited financial resources and low-income levels among tribal communities.**
- Inability to afford healthcare expenses, including medical treatments, medicines, and diagnostics.**

Lack of awareness about available healthcare schemes and insurance options.

•Cultural Sensitivities and Language Barriers:

- Unique cultural practices and beliefs that impact healthcare-seeking behavior.**
- Language barriers between healthcare providers and tribal communities, leading to miscommunication and inadequate care.**
- Lack of culturally sensitive healthcare services that respect tribal customs and traditions.**

•Limited Access to Essential Services:

- Insufficient availability of essential healthcare services, such as maternal and child health, immunization, and preventive care.
- Inadequate access to specialized care, diagnostic facilities, and emergency medical services.
- Limited awareness about health issues, preventive measures, and healthcare rights among tribal communities.

•Inadequate Funding and Resource Allocation:

- Limited allocation of funds for healthcare in tribal areas.**
- Insufficient investment in healthcare infrastructure, equipment, and technology.**
- Lack of dedicated funding for addressing tribal health challenges and implementing targeted interventions.

What is the GoI's Report on Tribal Health in India?

- In 2018, an expert committee, constituted jointly by the Ministry of Health and Family Welfare and Ministry of Tribal Affairs released the first comprehensive report on Tribal Health in India.

•Recommendations of the Report:

- Implement Universal Health Assurance under the National Health Policy (2017) in tribal areas.
- Utilize Aarogya Mitra, trained local tribal youth, and ASHA workers for primary care in tribal communities with support from the gram sabha.

- Provide financial protection through government medical insurance schemes for secondary and tertiary care.
- Introduce ST Health Cards for tribal people living outside scheduled areas to facilitate access to benefits at any healthcare institution.
- Implement a Tribal Malaria Action Plan in tribal-dominated districts under the National Health Mission.
- Strengthen Home-Based Newborn and Child Care (HBNCC) programs to reduce infant and child mortality.
- Enhance food security and strengthen Integrated Child Development Services (ICDS) to address malnutrition.
- Publish a state of tribal health report every three years and establish a Tribal Health Index (THI) to monitor tribal health.
- Establish a National Tribal Health Council as an apex body, along with Tribal Health Directorate and Tribal Health Research Cell, at both central and state levels

Multiple Sclerosis

As per the latest research, **Epstein-Barr virus (EBV)** can increase the risk of developing multiple sclerosis (MS).

About Multiple Sclerosis:

- It is a **chronic disease** that affects the **central nervous system**, including the brain, spinal cord, and optic nerves.
- In MS, the immune system attacks the **protective sheath (myelin) that covers nerve fibers** and causes communication problems between your brain and the rest of your body.

- Eventually, the disease can cause permanent damage or deterioration of the nerve fibers.
- There are many possible causes of MS, including:
 - Autoimmune disorders;
 - Infectious agents, such as viruses;
 - Environmental factors;
 - Genetic factors;

• Signs and symptoms:

- It vary widely between patients and depend on the location and severity of nerve fiber damage in the central nervous system.
- Some people have mild symptoms, such as blurred vision and numbness, and tingling in the limbs.
- In severe cases, a person may experience paralysis, vision loss, and mobility problems.

• Treatment: There's no cure for multiple sclerosis. However, there are treatments to help speed the recovery from attacks, modify the course of the disease and manage symptoms.

What is the Epstein-Barr virus (EBV)?

- It is one of the most common human viruses in the world.
- It spreads through bodily fluids, especially saliva (spit).

• Symptoms: Fatigue, fever, inflamed throat, swollen lymph nodes in the neck, enlarged spleen, swollen liver, rash.

- EBV can cause infectious mononucleosis, also called mono, and other illnesses.
- There is no vaccine to protect against EBV infection.

Tal Chappar Wildlife sanctuary

- Recently, The Union Ministry of Environment, Forest and Climate Change (MoEF) proposes to designate Tal Chhapar Sanctuary as Eco-Sensitive Zone.

About Tal Chhapar Sanctuary:

- Tal Chhapar Wildlife Sanctuary is located in **Sujangarh tehsil of Rajasthan's Churu district** and spanning 7.1977 square Km.
- It is situated on the **border of the Great Indian Thar Desert**.
- It was established as a "**Reserved area**" in **1962** and was given the status of a sanctuary in **1966**.
- **Topography:** This Sanctuary has nearly flat territory and combined thin low lying region.

•Fauna:

- The sanctuary is home to over 4,500 Blackbucks, Chinkara, and more than 250 species of birds, including migratory raptors.
- It is a distinctive shelter of the most graceful Antelope seen in India, "**the Blackbuck**".
- It is one of the top halting places for migratory birds such as harriers. The migratory birds come from Central Asia and Europe.

•Flora:

- It has got open and wide grasslands with spread **Acacia and Prosopis** plants that offer it a look of a characteristic Savanna

What is Eco-Sensitive Zone (ESZ)

- In order to manage and conserve biodiversity across the Protected Areas MoEF Change notifies Eco-Sensitive Zones (ESZs) around the Protected Areas.
- In the year 2002, it was decided that an area around each Protected Areas, requires to be notified as **Eco-Sensitive Zone for creating a buffer as further protection around Protected Areas (PAs) under Environment protection act, 1986**.
- Eco-sensitive Zone could go **up to 10 Kms around a Protected Areas**.

- The Supreme Court on 3 June 2022, modified its previous order mandating a **minimum 1-km eco-sensitive zone around national parks or wildlife sanctuaries.**

Health for all

Recently, Union Minister of Health and Family Welfare delivered the keynote address at a side event session on "Heal in India & Heal by India" at the 76th World Health Assembly, in Geneva.

About the event:

- 'Heal by India' initiative is designed with an intent to increase health workforce mobility from India to different parts of the world to serve the world as per the Indian Philosophy of 'Vasudhaiva Kutumbakam' (The World is One Family).
- 'Heal in India' initiative seeks to provide "integrated and holistic treatment" to the world in India and enhance patient mobility for access to world class, affordable and quality healthcare services".

World Health Organization (WHO)

- WHO is a specialized agency of the United Nations responsible for international public health.
- It is headquartered in Geneva, Switzerland.
- It was established in 7 April 1948, which is commemorated as World Health Day.
- Work:** the agency leads global efforts to expand universal health coverage and direct and coordinate the world's response to health emergencies.
- The World Health Assembly (WHA), composed of representatives from all 194 member states, serves as the agency's supreme decision-making body.
- Funding: Voluntary donations from member states.

Sengol:

A historical sceptre from Tamil Nadu 'Sengol' will be installed at the new Parliament building to be inaugurated by Prime Minister Narendra Modi on May 28.

About Sengol:

•Origin:

- It was used on August 14, 1947, by then Prime Minister Jawaharlal Nehru when the transfer of power took place from the British. It was kept in a museum in Allahabad.
- The word Sengol is derived from the Tamil word 'Semmai', meaning 'righteousness'. It is a civilisation practice from the kingdom, which was among the leading kingdoms in the Indian sub-continent for centuries.

•Symbolic:

- According to Tamil tradition, a high priest presents a sceptre to a newly crowned king as a symbolic gesture of power transition.
- The one accorded the 'sengol' is expected to impart a just and impartial rule. C Rajagopalachari, the last Governor General of India, suggested that this tradition, observed by the Chola dynasty, could serve as a significant symbol of India's freedom from British rule.

•Features:

- The 'Sengol' was crafted by a renowned jeweller in Madras Vummidi Bangaru Chetty. This impressive sceptre measures five feet in length and features a 'nandi' bull at the top, representing the concept of justice.

Barents sea





- 1 The Barents Sea is a marginal sea of the Arctic Ocean located off the northern coasts of Norway & Russia.
- 2 Also called as the Murman Sea in Russia.
- 3 It is divided between Norwegian and Russian territorial waters.
- 4 The Barents Sea is bounded by the Svalbard archipelago in the northwest, Franz Josef Land islands in the northeast, the Novaya Zemlya archipelago in the east, the

Norwegian Sea and the Greenland Sea in the west,& by the Kola Peninsula in the south.

Tobacco Consumption

Globally:

The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 8 million people a year (as per the World Health Organisation), including around 1.2 million deaths from exposure to second-hand smoke.

Nearly one in four people across the globe use tobacco.

All forms of tobacco are harmful, and there is no safe level of exposure to tobacco.

Cigarette smoking is the most common form of tobacco use worldwide.

Other tobacco products include waterpipe tobacco, various smokeless tobacco products, cigars, cigarillos, roll-your-own tobacco, pipe tobacco, bidis and kreteks.

Tobacco use is a major risk factor for many chronic diseases, including cancer, lung disease, cardiovascular disease and stroke.

Status in India:

38% men and 9% women above 15 years of age use tobacco products, as per the National Family Health Survey 5 (2019-21).

Women (19%) and men (51%) belonging to Scheduled Tribes are more likely to use tobacco than those from any other caste/tribe groups.

Among men as well as women, the use of tobacco is higher in rural areas (43% for men and 11 % for women) than in urban areas.

Socio-Economic Burden of Tobacco Consumption:

Tobacco use contributes to poverty by diverting household spending from basic needs such as food and shelter to tobacco.

It is one of the major causes of death and disease in India and accounts for nearly 1.35 million deaths every year.

India is also the second largest consumer and producer of tobacco. A variety of tobacco products are available at very low prices in the country.

What Measures have been Taken to Tackle High Tobacco Consumption?

Global Initiatives:

WHO Framework Convention on Tobacco Control (WHO FCTC):

It was developed in response to the globalisation of the tobacco epidemic and is an evidence-based treaty that reaffirms the right of all people to the highest standard of health.

India has adopted the tobacco control provisions under the WHO FCTC.

World No Tobacco Day:

31st May is observed as 'World No Tobacco Day' every year to spread awareness around the deadly effects of tobacco consumption.

India's Initiatives:

Cigarettes and Other Tobacco Products Act (COTPA), 2003:

It replaced the Cigarettes Act of 1975 (largely limited to statutory warnings- 'Cigarette Smoking is Injurious to Health' to be displayed on cigarette packs and advertisements. It did not include non-cigarettes).

The 2003 Act also included cigars, bidis, cheroots, pipe tobacco, hookah, chewing tobacco, pan masala, and gutka.

Promulgation of the Prohibition of Electronic Cigarettes Ordinance, 2019:

It prohibits Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement of e-Cigarettes.

National Tobacco Quitline Services (NTQLS):

Tobacco Quitline Services have the potential to reach a large number of tobacco users with the sole objective to provide telephone-based information, advice, support, and referrals for tobacco cessation.

Ayushman Bharat PM-JAY

What is Ayushman Bharat-PMJAY?

About:

PM-JAY is the world's largest health insurance/ assurance scheme fully financed by the government.

Launched in February 2018, it offers a sum insured of Rs.5 lakh per family for secondary care (which doesn't involve a super specialist) as well as tertiary care (which involves a super specialist).

Under PMJAY, cashless and paperless access to services are provided to the beneficiaries at the point of service, that is, hospital.

Health Benefit Packages covers surgery, medical and day care treatments, cost of medicines and diagnostics.

Packaged rates (Rates that include everything so that each product or service is not charged for separately).

These are flexible but the hospitals can't charge the beneficiary more once fixed.

Beneficiaries:

It is an entitlement-based scheme that targets the beneficiaries as identified by latest Socio-Economic Caste Census (SECC) data.

Once identified by the database, the beneficiary is considered insured and can walk into any empaneled hospital.

Funding:

The funding for the scheme is shared – 60:40 for all states and UTs with their own legislature, 90:10 in Northeast states and Jammu and Kashmir, Himachal and Uttarakhand and 100% Central funding for UTs without legislature.

Nodal Agency:

The National Health Authority (NHA) has been constituted as an autonomous entity under the Society Registration Act, 1860 for effective implementation of PM-JAY in alliance with state governments.

The State Health Agency (SHA) is the apex body of the State Government responsible for the implementation of AB PM-JAY in the State.

What is necrophilia?

Necrophilia is a term derived from the Greek words philios (attraction to/love) and nekros (dead body) and involves the sexual attraction to a dead body.

Amend law to make necrophilia an offence, says HC

The Hindu Bureau

BENGALURU

Observing that the attendants appointed to guard the bodies in mortuaries of many government and private hospitals indulge in "sexual intercourse" on the bodies, the High Court of Karnataka has recommended that the Union government amend the Indian Penal Code (IPC) to bring necrophilia under the definition of offence of unnatural sex or introduce new provision in IPC to make necrophilia an offence.

Referring to laws in the United Kingdom, Canada, New Zealand, and South Africa where necrophilia is an offence, the court said "unfortunately in India no specific legislation is enact-

ed, including under the provisions of IPC for the purpose of upholding dignity and protecting rights and crime against the body of the woman."

A Division Bench comprising of Justice B. Veerappa and Justice Venkatesh Naik T. passed the order while acquitting Rangaraju from the charges of raping a 25-year-old woman after murdering her. The trial court in Tumakuru had convicted him for murder and sexually assaulting her body after murdering her. Though the High Court confirmed his conviction for murder, it set aside the conviction on the charges of rape while pointing out that the act of sexual assault on the dead body cannot be termed as rape under Sections 377 (unnatu-



ral sex) and 376 (rape) the IPC.

Unfortunately these provisions of the IPC do not include the term 'dead body,' the Bench said while pointing out that necrophilia does not attract the provision of rape under Section 376 of IPC.

"It is high time the Union government, in order to maintain right to dignity of the dead person/woman, amend the provi-

QQ In India no specific legislation is enacted, including under the provisions of IPC for the purpose of upholding dignity and protecting rights and crime against the dead

KARNATAKA HIGH COURT

sions of Section 377 of IPC to include body of any man, woman or animal or introduce a separate provision as offence against dead woman as necrophilia or sadism" as has been done in other countries to ensure dignity of the dead person including woman, the Bench observed.

Mortuary monitoring
Meanwhile, the Bench directed the State govern-

ment to ensure CCTV cameras are installed, mortuaries are regularly cleaned so that body is preserved in a proper manner to maintain its dignity and that staff of mortuary are sensitised to handle bodies with care in the mortuaries of all the government and private hospitals, to prevent offence against dead, particularly of women, within six months.

The postmortem room should not come under the direct line of sight of the general public/visitors for maintaining privacy; and mortuaries should have all basic infrastructure as per the Indian Public Health Standard guidelines for the district hospitals for management of the bodies, the High Court Bench said.

Worlds largest grain storage plan: Center to implement pilot projects in 10 districts.

Primary Agricultural Credit Societies

About:

PACS are village level cooperative credit societies that serve as the last link in a three-tier cooperative credit structure headed by the State Cooperative Banks (SCB) at the state level.

Credit from the SCBs is transferred to the District Central Cooperative Banks (DCCBs), that operate at the district level. The DCCBs work with PACS, which deal directly with farmers.

PACSS provide short-term, and medium-term agricultural loans to the farmers for the various agricultural and farming activities.

The first PACS was formed in 1904.

Status:

A report published by the Reserve Bank of India on December 27, 2022 put the number of PACS at 1.02 lakh. At the end of March 2021, only 47,297 of them were in profit.

What is the Significance of PACS?

Access to Credit:

PACS provide small farmers with access to credit, which they can use to purchase seeds, fertilizers, and other inputs for their farms. This helps them to improve their production and increase their income.

Financial Inclusion:

PACS help to increase financial inclusion in rural areas, where access to formal financial services is limited. They provide basic banking services, such as savings and loan accounts, to farmers who may not have access to formal banking services.

Convenient Services:

PACS are often located in rural areas, which makes it convenient for farmers to access their services. This is important because many farmers are unable to travel to banks in

urban areas to access financial services.

PACS have the capacity to extend credit with minimal paperwork within a short time.

Promoting Savings Culture:

PACS encourage farmers to save money, which can be used to improve their livelihoods and invest in their farms.

Enhancing Credit Discipline:

PACS promote credit discipline among farmers by requiring them to repay their loans on time. This helps to reduce the risk of default, which can be a major challenge in the rural financial sector.

Issues with the PACS?

Inadequate Coverage:

Though geographically active PACS cover about 90% of 5.8 villages, there are parts of the country, especially in the north-east, where this coverage is very low.

Further, the rural population covered as members is only 50% of all the rural households.

Inadequate Resources:

The resources of the PACS are much too inadequate in relation to the short-and medium-term credit needs of the rural economy.

The bulk of even these inadequate funds come from higher financing agencies and not through owned funds of societies or deposit mobilization by them.

Overdues and NPAs:

Large over-dues have become a big problem for the PACS.

As per the RBI report, PACS had reported lending worth Rs 1,43,044 crore and NPAs of Rs 72,550 crore. Maharashtra has 20,897 PACS of which 11,326 are in losses

Biodiversity is us and we are biodiversity

1. Pivotal role our natural world plays in resolving the climate change crisis, which along with decline of biodiversity poses an existential threat to future
2. Maintaining and enhancing biodiversity on land and in oceans is perhaps the least expensive mechanism to sequester carbon dioxide from atmosphere.
3. Nature not only fulfills our natural needs but also helps in climate change
4. It is biodiversity that will inspire our children to opt for a more humane just and hopeful future, which accords primacy to the living world.
5. We have been poor stewards for caring and nurturing life on earth
6. Civil society must play a critical role in sustaining our biodiversity.
7. Paradigm shift in the care of biodiversity long overdue should begin now
8. Currently the main custodian is IFS, but forest in 21st century have limited meaning or usefulness.
9. Forest is not only limited to our immense and natural heritage. India's biodiversity is not only land but also in waterbodies, rivers, deltas, and oceans.
10. Multifunctional landscapes where aspirations, beliefs, traditional knowledge and direct participation of local communities are central to the notion of conserving and sustaining life on earth.
11. As biodiversity is everywhere we must mainstream it in our daily actions in every development programme, in every government department, in every public and private institution.
12. It is time to decentralize the management of biodiversity by bringing together multiple stakeholders, especially local communities through gram sabhas and biodiversity management committees.
13. Undertaking such pledge would be a fitting celebration of our precious and irreplaceable natural world

Kangerghati national park

National Parks & Sanctuaries of Chhattisgarh



Neuralink

In news: Neuralink, the Elon Musk company is the target of a federal investigation over its animal trial program, has been trying to develop a brain chip that would enable the paralyzed to walk and the blind to see.

Musk said last week he believes Neuralink can start human clinical trials in six months.

About Neuralink:

Founded in 2016 by Elon Musk and a group of engineers.

Neuralink is building a brain chip interface that can be implanted within the skull, which it says could eventually help **disabled patients to move and communicate again**, and restore vision.

Neuralink's device has a chip that processes and transmits neural signals that could be transmitted to devices like a computer or a phone.

Neuralink has produced several examples of testing aspects of its technology successfully on animals, including a video in 2021 that showed a macaque playing a simple videogame after being implanted with a brain chip.

Application:

The company hopes that a person would potentially be able to control a mouse, keyboard or other computer functions like text messaging with their thoughts.

Neuralink also believes its device will eventually be able to restore neural activity inside the body, allowing those with spinal cord injuries to move limbs.

The San Francisco and Austin-based company also aspires to cure neurological conditions such as [Alzheimer's and dementia](#).

Telangana:

Telangana Formation Day

About:

On 2nd June, 2014 the northwestern part of Andhra Pradesh was separated and 29th state Telangana was created.

The Andhra State Act (1953) formed the first linguistic state of India, known as the state of Andhra, by taking out the Telugu speaking areas from the State of Madras (now Tamil Nadu).

The States Reorganisation Act (1956) merged the Telugu-speaking areas of Hyderabad state with the Andhra state to create the enlarged Andhra Pradesh state.

The Andhra Pradesh Reorganisation Act (2014) bifurcated Andhra Pradesh into two separate states, namely, the Andhra Pradesh (residuary) and the Telangana.

Capital:

Hyderabad

Borders:

Telangana is surrounded by Maharashtra and Chhattisgarh in the North, Karnataka in the West and Andhra Pradesh in the South and East directions.

Four Icons of Telangana:

State Bird - Palapitta (Indian Roller or Blue Jay).

State Animal - Jinka (Deer).

State Tree - Jammi Chettu (Prosopis Cineraria).

State Flower - Tangedu (Tanner's Cassia).

Global Recognition:

Ramappa Temple, at Mulugu district presents the distinct style of Kakatiyas. The foundation of this temple is "sandbox technique". It is a UNESCO World Heritage Site.

Sadarmatt anicut across river Godavari in Nirmal district and Pedda Cheruvu in Kamareddy district are in the ICID Register of Heritage Irrigation Structures.

National Parks:

Kasu Brahmananda Reddy National Park

Mahavir Harina Vanasthalı National Park

Mrugavani National Park

Wild Life Sanctuaries:

Kinnersani Wildlife Sanctuary

Eturnagaram Wildlife Sanctuary

Kawal Tiger Reserve

Lanja Madugu Siwaram Wildlife Sanctuary

Manjeera Crocodile Wildlife Sanctuary

Nagarjuna Sagar-Srisailam Wildlife Sanctuary

Pakhal Wildlife Sanctuary

Pocharam Wildlife Sanctuary

Pranahita Wildlife Sanctuary

Law Commission of India

Context :- Retired High Court Chief Justice Rituraj Awasthi has been appointed as the chairperson of the 22nd law commission of India which was constituted in 2020.

Law Commission of India

About:

The Law Commission of India is a non-statutory body constituted by the Government of India from time to time.

The first Law Commission of independent India was established in 1955 for a three-year term.

The first Law Commission was established during the British Raj era in 1834 by the Charter Act of 1833 and was chaired by Lord Macaulay.

Objectives:

It works as an advisory body to the Ministry of Law and Justice.

The Law Commission undertakes research in law and review of existing laws in India for making reforms therein and enacting new legislations on a reference made to it by the

Central Government or suo-motu.

Composition:

Apart from having a full-time chairperson, the commission will have four full-time members, including a member-secretary.

Law and Legislative Secretaries in the Law Ministry will be the ex-officio members of the commission.

It will also have not more than five part-time members.

A retired Supreme Court judge or Chief Justice of a High Court will head the Commission.

Important Recommendations of the Commission

The Law Commission in its 262nd Report recommended abolition of the death penalty for all crimes except terrorism-related offences and waging war against the state.

Its report on electoral reforms (1999) had suggested simultaneous Lok Sabha and state assembly elections to improve governance and stability.

The Criminal Procedure (Identification) Act, 2022 which replace the Identification of Prisoners Act, 1920 was also proposed by the Law Commission of India.

The 21st Law commission in its recommendation in 2018 said that Uniform Civil Code (UCC) is "neither necessary nor desirable at this stage".

Now, the center has requested the 22nd Law Commission of India to undertake an examination of various issues relating to the same.

Sedition Law

GS Paper - 2

Issues Arising Out of Design & Implementation of Policies

Government Policies & Interventions

Fundamental Rights

Judgements & Cases

Indian Constitution

Historical Background of Sedition Law:

Sedition laws were enacted in 17th century England when lawmakers believed that only good opinions of the government should survive, as bad opinions were detrimental to the government and monarchy.

The law was originally drafted in 1837 by Thomas Macaulay, the British historian-politician, but was inexplicably omitted when the Indian Penal Code (IPC) was enacted in 1860.

Section 124A was inserted in 1870 by an amendment introduced by Sir James Stephen when it felt the need for a specific section to deal with the offence.

Sedition Law Today: Sedition is a crime under Section 124A of the Indian Penal Code (IPC).

Section 124A IPC:

It defines sedition as an offence committed when "any person by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India".

Disaffection includes disloyalty and all feelings of enmity. However, comments without exciting or attempting to excite hatred, contempt or disaffection, will not constitute an offence under this section

Punishment for the Offence of Sedition:

Sedition is a non-bailable offence. Punishment under the Section 124A ranges from imprisonment up to three years to a life term, to which fine may be added.

A person charged under this law is barred from a government job.

They have to live without their passport and must produce themselves in the court at all times as and when required

Issues With Sedition Law:

Relic of Colonial Era:

Colonial administrators used sedition to lock up people who criticised the British policies.

Stalwarts of the freedom movement such as Lokmanya Tilak, Mahatma Gandhi, Jawaharlal Nehru, Bhagat Singh, etc., were convicted for their "seditious" speeches, writings and activities under British rule.

Thus, rampant use of the sedition law recalls the colonial era.

Stand of Constituent Assembly:

The Constituent Assembly did not agree to include sedition in the Constitution. The members felt it would curtail freedom of speech and expression.

They argued that the sedition law can be turned into a weapon to suppress people's legitimate and constitutionally guaranteed right to protest

Disregarding Supreme Court's Judgement:

Supreme Court in Kedar Nath Singh vs State of Bihar case 1962, limited application of sedition to "acts involving intention or tendency to create disorder, or disturbance of

law and order, or incitement to violence".

Thus, invoking sedition charges against academicians, lawyers, socio-political activists and students is in disregard of the Supreme Court's order.

Recent Developments:

In February 2021, the Supreme Court (SC) protected a political leader and six senior journalists from arrest, for allegedly tweeting and sharing unverified news, in multiple sedition FIRs registered against them.

In June 2021, the SC while protecting two Telugu (language) news channels from coercive action by the Andhra Pradesh government emphasized on defining the limits of sedition.

What is the Overall Status of Solar Energy in India?

As of October 2022, 61GW of solar power had been installed so far, according to numbers presented in Parliament.

Further, India has set an ambitious target to achieve a capacity of 175 GW worth of renewable energy by the end of 2022 (100 GW was to be solar power), which expands to 500 GW by 2030. This is the world's largest expansion plan for renewable energy.

India was the second-largest market in Asia for new solar PV capacity and third globally. It ranked fourth for total installations (60.4 GW), overtaking Germany (59.2 GW) for the first time.

As of June 2022, Rajasthan and Gujarat were the top states for large-scale solar, accounting for 53% and 14% of installations, respectively, followed by Maharashtra with 9%.

What Initiatives has India Taken for Solar Energy?

Solar Park Scheme:

The Solar Park Scheme plans to build a number of solar parks, each with a capacity of nearly 500 MW, across several states.

Rooftop Solar Scheme:

The Rooftop Solar Scheme aims to harness solar power by installing solar panels on the roof of houses.

SRISTI Scheme:

Sustainable rooftop implementation of Solar transfiguration of India (SRISTI) scheme to promote rooftop solar power projects in India.

International Solar Alliance (ISA):

The ISA was conceived as a joint effort by India and France to mobilize efforts against climate change through the deployment of solar energy solutions.

Purchasing Manager's Index

What is the PMI?

It is a survey-based measure that asks the respondents about changes in their perception of key business variables as compared with the previous month. It is an index of the prevailing direction of economic trends in the manufacturing and service sectors.

The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.

It is calculated separately for the manufacturing and services sectors and then a composite index is also constructed.

The PMI is a number from 0 to 100.

A print above 50 means expansion, while a score below that denotes contraction.

A reading at 50 indicates no change.

If the PMI of the previous month is higher than the PMI of the current month, it represents that the economy is contracting.

It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.

PMI is compiled by IHS Markit for more than 40 economies worldwide.

IHS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.

IHS Markit is part of S&P Global.

As the official data on industrial output, manufacturing and Gross Domestic Product (GDP) growth comes much later; PMI helps to make informed decisions at an earlier stage.

It is different from the Index of Industrial Production (IIP), which also gauges the level of activity in the economy.

IIP covers the broader industrial sector compared to PMI.

However, PMI is more dynamic compared to a standard industrial production index

What is the Significance of PMI?

Provides a Reliable Expectation of Economy:

The PMI is becoming one of the most tracked indicators of business activity across the world.

It provides a reliable expectation of how an economy is doing as a whole and manufacturing in particular.

Indicator of Economic Activity:

It is a good gauge of boom-and-bust cycles in the economy and closely watched by investors, business, traders and financial professionals besides economists.

PMI is also regarded as a leading indicator of economic activity since it is released at the beginning of every month.

It comes before the official data on industrial output, core sector manufacturing and GDP growth.

Helps in Decision Making:

The PMI is used by central banks to set interest rates

CENSUS

Social Research and Policy Analysis:

Census data aids researchers, academics, and policymakers in studying trends, understanding societal changes, and evaluating policies. It contributes to evidence-based decision-making and informed public discourse.

Implications of the delay in Census

Targeting the Right Beneficiaries:

Outdated Census information (available from the last Census in 2011) often becomes unreliable and affects those who do and do not receive the benefits of welfare schemes.

For Instance, National Food Security Act, 2013 which provides subsidised foodgrains to poor & vulnerable uses the census data to identify the beneficiaries.

According to 2011 census, India's population was about 121 crore and PDS beneficiaries were approximately 80 crores. However, the world bank has estimated India's population to be 141 crore, PDS coverage should have increased to around 97 crore people.

Moreover, the Finance Commission uses census data while granting finances to the states. In absence of exact data allocation of funds to the states would be disproportionate.

Challenges for Research and Analysis:

Researchers and policymakers may have to rely on outdated information or alternative data sources, which may not provide the same level of accuracy or granularity.

Census data are critical for other sample surveys conducted in the country as they use the Census data as reference.

For instance, the latest National Family Health Survey (NFHS-5) released last year used 2011 census data.

Impacts the Political Representation:

The Census data is also used to demarcate constituencies and allocate seats in Parliament and State Assemblies. The delay in the Census means that the data from the 2011 Census would continue to be used. This may not reflect the rapid changes in the composition of the population over the last decade.

Census data is used for delimitation of constituencies and for determining the quantum of reservation for Scheduled Castes and Scheduled Tribes. The delay means that either too many or too few seats are being reserved for SC/STs and women in different regions.

Compromises the Migration Data: The Census data is also important to understand migration and migration patterns and its economic impact. The delay in the Census means that the latest information on internal and international migration is not available for policy making and planning.

The Covid pandemic has exposed the need for Migration Data. During lockdowns, the govt - in the absence of adequate data - was unable to target migrant laborers stranded in cities far from their homes.

Missed Opportunities and Delayed Decision-making: Timely census data is essential for identifying emerging trends, assessing needs, and seizing opportunities. A delay in the census can result in missed opportunities for targeted interventions, economic planning, and business decisions.

How will the 2021 Census be Different from Previous ones?

For the first time the data is collected digitally via mobile applications (installed on enumerator's phone) with a provision of working in offline mode.

The 2021 census will have Other Backward Class (OBC) data, for the first time since the 1931 census.

The 2021 census will be conducted in 18 languages out of the 22 scheduled languages and English, while Census 2011 was in 16 of the 22 scheduled languages declared at that time.

The 2021 census will have a dynamic approach having 31 questions in the house-listing schedule, which include new questions on access to internet, laptop/computer, and LPG/PNG connection.

First time that information of a person from the Transgender Community and members living in the family will be collected.

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India Nepal relations

As close neighbors, India and Nepal share unique ties of friendship and cooperation characterized by an open border and deep-rooted people-to-people

contacts of kinship and culture (Roti – Beti Ka Naata).

There has been a long tradition of free movement of people across the border.

Nepal shares a border of over 1850 km with **five Indian states – Sikkim, West Bengal, Bihar, Uttar Pradesh and Uttarakhand**.

Moreover, Nepal is strategically located as it acts as a **natural security buffer between India and China**.

It is also critical for **India's internal security** as harmonious relations between both countries is necessary to **nab terrorists and maoist groups having Nepal as their base**.

The India-Nepal Treaty of Peace and Friendship of 1950 forms the bedrock of the special relations that exist between India and Nepal.

Treaty was signed with an objective to strengthen the relationship between the two countries by recognizing historical values and perpetuating peace in the region.

Following are the major provisions of the treaty:

- Both countries acknowledge each other's **territorial integrity and sovereignty**.
- National treatment of each other's citizens in economic matters: Nepalese citizens avail facilities and opportunities on par with Indian citizens in accordance with the provisions of the Treaty. Nearly 6 million Nepalese citizens live and work in India.
- **Arms imports of Nepal:** Nepal would consult India whenever they undertake any arms imports from any nation other than India.
- **Open borders.**

India's Development Assistance to Nepal:

Government of India's development assistance to Nepal is a broad-based programme focusing on creation of infrastructure at the grass-roots level, under

which various projects have been implemented in the areas of infrastructure, health, water resources, education and rural & community development.

In recent years, India has been assisting Nepal in development of border infrastructure through upgradation of 10 roads in the Terai area;

Development of **cross-border rail links** at Jobani Biratnagar, Jaynagar-Bardibas; and establishment of Integrated Check Posts at Birgunj, Biratnagar, Bhairahawa, and Nepalganj.

In 2019, Prime Ministers of India and Nepal jointly inaugurated through video conference, South Asia's first cross-border petroleum products pipeline from Motihari in India to Amlekhgunj in Nepal.

Apart from grant assistance, Government of India has extended **Lines of Credit of USD** 1.65 billion for undertaking development of infrastructure, including post-earthquake reconstruction.

Earthquake 2015:

When a devastating 7.8 magnitude earthquake struck Nepal in 2015, the Government of India swiftly dispatched **National Disaster Response Force (NDRF)** teams and special aircrafts with rescue and relief materials to Nepal. The total Indian relief assistance to Nepal amounted to over US\$ 67 million. The Government of India announced a post-earthquake reconstruction package of US\$ 1 billion (which comprises US\$ 250 million grant and US\$ 750 million concessional Line of Credit) during the International Conference on Nepal's Reconstruction held in Kathmandu in 2015

Economic relations:

Bilateral trade is over US\$ 7 billion which makes India as **Nepal's largest trading partner.**

India's **exports** to Nepal have grown over **8 times** in the past 10 years.

Because of its geographical constraints, Nepal has found itself **heavily reliant on India**.

India has provided **transit facility** to Nepal for the third country trade.

Both public and private sectors of India have invested in Nepal.

The trade statistics reveals phenomenal increase in the volume of bilateral trade over the years between the two countries.

However, Nepal has escalating trade deficit with India. Nepalese local enterprises fail to grow because they are unable to compete against lower priced Indian products that flood the market.

Nepal and India have concluded bilateral Treaty of Transit, Treaty of Trade and the Agreement of Cooperation to control unauthorized Trade.:.

Indian Investment in Nepal:

Indian firms are among the largest investors in Nepal, accounting for about 30% of the total approved foreign direct investments.

There are about 150 Indian ventures operating in Nepal engaged in manufacturing, services (banking, insurance, dry port, education and telecom), power sector and tourism industries.

Water Resources:

Cooperation in water resources primarily concerning the common rivers is one of the most important areas of bilateral relations.

A large number of small and large rivers flow from Nepal to India and constitute an important part of the Ganges river basins.

These rivers have the potential to become major sources of irrigation and power for Nepal and India.

Both countries have three treaties to regulate water sharing:

- In 1954, India and Nepal signed Kosi treaty. This river causes tremendous flooding and is also known as sorrow of Bihar. As per the treaty both countries agreed to cooperate to manage Kosi flooding. India, under the treaty, committed to create a barrage dam, which can help regulate Kosi's water flow. India constructed the barrage and Nepal agreed to give its management rights to India for 199 years. This has been the cause of much discontent among certain sections of Nepalese society.
- In 1959, India and Nepal also signed the Gandak River treaty. As per the treaty both sides can utilize water from the river to generate 20,000 MW electricity.
- In 1996, India and Nepal signed **Mahakali** treaty. As per the treaty India has agreed to undertake the creation of 3 dams at **Sarda, Tanakpur and Pancheshwar**. Both sides have agreed to share costs. However, there has been no progress on these projects owing to pending social and environmental impact assessment. Moreover, following mechanism and treaty has been signed to harness the full potential of hydropower and management of common rivers:
- A three tier bilateral mechanism established in 2008, to discuss issues relating to cooperation in water resources, flood management, inundation and hydropower between the two countries, has been working well.
- An important **Power Trade Agreement** was signed between the two countries in 2014 paving way for the power developers of the two countries to trade electricity across the border without restrictions. The agreement shall be valid for 50 years. Under the agreement, Nepal would give license to Indian firms to undertake 28 surveys in Nepal to explore 8,000 MW power generation.

Private/public power developers from India have reached agreements with the Investment Board of Nepal to develop two mega hydropower projects – Upper Karnali and Arun III. GMR will establish a plant in Karnali to export 900 MW electricity to India

New Partnership in Agriculture:

During the visit of Prime Minister of Nepal Mr. K. P. Sharma Oli to India in April 2018, the "India-Nepal New Partnership in Agriculture" was launched with a focus on collaborative projects in agricultural research, development and education.

This is an important and timely initiative as vast populations of the two countries predominantly depend on agriculture and related activities for their livelihood.

Defence Cooperation:

India and Nepal have wide-ranging cooperation in the defence sector. India has been assisting the Nepal Army (NA) in its modernisation by supplying equipment and providing training. A number of defence personnel from Nepal Army attend training courses in various Indian Army training institutions

The Indo Nepal Battalion-level **Joint Military Exercise "SURYA KIRAN"** is conducted alternately in India and in Nepal. Since 1950, India and Nepal have been awarding each other's Army Chief with the honorary rank of General in recognition of the mutual harmonious relationship between the two armies.

The Gorkha regiments of the Indian Army are raised partly by recruitment from hill districts of Nepal. Currently, about 32,000 Gorkha Soldiers from Nepal are serving in the Indian Army.

Education:

Over the years, India's contribution to the development of human resources in Nepal has been one of the major aspects of bilateral cooperation.

Gol provides around 3000 scholarships/seats annually to Nepalese nationals for various courses at the Ph.D/Masters, Bachelors and plus–two levels in India and in Nepal.

Culture Gol has been taking initiatives to promote people-to-people contacts in the fields of art & culture, academics and media.

India is establishing an e-library system across Nepal. Furthermore, MoUs/Agreements have been signed between:

- Sahitya Kala Akademi (India) and Nepal Academy
- Doordarshan (India) and Nepal TV
- Press Council of India and Press Council of Nepal
- Lalit Kala Akademi (India) and Nepal Academy of Fine Arts
- GoI and Government of Nepal for cooperation on youth affairs
- Sangeet Natak Akademi (India) and Nepal Academy of Music & Drama
- GoI and Government of Nepal for twinning of sister cities Kathmandu-Varanasi, Lumbini-Bodhgaya and Janakpur-Ayodhya

China's growing role in Nepal

India and Nepal have always shared close relationship of friendship and cooperation. However, Nepal has tilted towards China.

This tilt is noticeable since **Madhesi agitation of 2015**

Madhesi's live in the terai belt of Nepal neighbouring India. They were very unhappy with gerrymandered provinces outlined by 2015 constitution of Nepal. Thus, they started massive protest to demand amendments and blocked all routes to India.

An economic blockade was imposed on Nepal, causing huge shortages of food, fuel and medicine supplies. During this crisis, Nepal sought help from India.

However, India **sympathized with madhesi community** and supported their demand of amending new constitution. New Delhi was blamed for using an (unofficial) economic blockade as a pressure tactic to politically influence Kathmandu, which contributed to souring of bilateral relations toward the end of 2015.

India had demanded to delay promulgation of the Constitution until concerns of Terai people are not addressed. Indian stand during the madhesi agitation caused a strong **anti-India sentiment in Nepal**.

Nepal was alienated from India. Moreover, Communist party of Nepal led by **K.P. Sharma Oli has been generous towards communist china**.

Since 2015, Mr Oli has been the PM for majority of the time. He recently lost power in July, 2021 to **Sher Bahadur Deuba** (Nepali congress).

It is noteworthy, Oli and his allies had secured a nearly two-thirds majority in Parliament in the 2018 polls. His triumph is attributed largely to the way he had stood up to India during madhesi agitation as Nepal had refused to delay promulgation of the Constitution without addressing the concerns of the people in the Terai region.

Oli in Nepal won the image of a nationalist, especially after he moved closer to China by proposing trade and transit arrangements to address the shortage of essential commodities.

Thus, since 2015 Nepal's engagement with China has increased. It has signed multiple agreements with China which are listed below:

- Nepal – China rail link agreement
- Joint military exercise pact (Sagarmatha Friendship)
- Rasuwagadhi – Syabrubesi road link
- Nepal has joined BRI
- 1200 mw project on Budhi river by Gezhouba group

As per above vision following major decisions have been taken:

- Both prime ministers have agreed to review, adjust and update the treaty of peace and friendship of 1950 and other bilateral agreements.

- In 2018, PM Modi visited Janaki temple in Janakpur, which is dedicated to hindu goddess Sita. India has relied on soft power to present a positive image of India to the people of Nepal, by visiting places underlining cultural commonalities between the two countries such as Janakpur, where the Hindu god Rama's wife Sita was born. He also inaugurated a bus service between Janakpur and Ayodhya to promote religious tourism.
- Both countries exchanged a MOU to build a strategic railway line connecting Bihar's Raxaul city to Kathmandu. It will be a real game changer. This rail link once established can provide a channel to travel from Rameshwaram to Mansarovar. This can be a great push to the model of regional integration and India will be able to put up an alternative to the Belt and Road initiative.
- PM Modi focused on bilateral economic cooperation by laying the foundation for the Arun III 900-megawatt hydroelectricity project.
- Both PM's jointly inaugurated the Motihari – Amlekhgunj petroleum product pipeline. It is 69 km long and first ever cross border petroleum product pipeline in South Asia.
- PM Modi has given a new 5T (Tradition, Trade, Tourism, Technology and Transport) formula for Nepal.

According to PM Modi, "New Delhi is ready to be the Sherpa to help Nepal scale the mountain of success." Thus, it appears that India has made sincere attempts to recover its lost ground in Nepal. However, relations again turned bitter because of the recent **Kalapani territorial dispute**. Kalapani territorial dispute In 2020, Nepal's parliament, in a rare show of unanimity, passed a constitution amendment Bill to approve the country's new map that includes **Kalapani, Lipulekh and Limpiyadhura** which figure in Indian maps. Bill has been signed by the President and now new Nepal map

Kalapani territorial dispute In 2020

Nepal's parliament, in a rare show of unanimity, passed a constitution amendment Bill to approve the country's new map that includes **Kalapani, Lipulekh and**

Limpiyadhura which figure in Indian maps.

Bill has been signed by the President and now new Nepal map is part of the constitution.

Following is India's frosty response:

"We have noted that the House of Representatives of Nepal has passed a constitution amendment Bill for changing the map of Nepal to include parts of Indian Territory. This artificial enlargement of claims is not based on historical fact or evidence and is not tenable. It is also violative of our current understanding to hold talks on outstanding boundary issues"

This battle over the historical accuracy of a geographical territory is one that has been brewing between the two neighbouring countries for the past several decades now. The bone of contention is the Kalapani-Limpiyadhura-Lipulekh trijunction between Nepal-India and China (Tibet). Located on the banks of the river Kali at an altitude of 3600m, the Kalapani territory lies at the eastern border of Uttarakhand in India and Nepal's Sudurpashchim Pradesh in the West.

India claims the area is part of Uttarakhand's Pithoragarh district, while Nepal believes it to be part of its Dharchula district.

Matters came to a boil recently, when India opened an 80-km road linking Uttarakhand with Lipulekh, across the disputed piece of land. While the territory is of strategic importance to India and Nepal, the issue is complicated by the contest over the historicity of cartographic evidence that both sides claim to be most accurate.

The issue in itself goes back to the early 19th century, when the British ruled India and Nepal was a conglomeration of small kingdoms under the reign of King Prithvi Narayan Shah. On November 1, 1814, the British had declared war on Nepal. The war went on for the next two years, involving a series of campaigns. In 1815, the British general, Sir David Ochterlony, managed to evict the Nepalese from Garhwal and Kumaon.

A year later, the War came to an end with the signing of the [Sugauli treaty \(1816\)](#). The treaty delimited the boundaries of Nepal, as it stands today. The fifth article of the treaty stated: "The Rajah of Nepal renounces for himself, his heirs, and successors all claim to or connection with the countries lying to the west of the river Kali and engages never to have any concern with those countries or inhabitants thereof." Consequently, the river Kali marked the western border of Nepal.

However, there is no clear consensus on what is the precise location of the river Kali, giving rise to the dispute over whether the land consisting Kalapani-Limpiadhura-Lipulekh is part of present day India or Nepal.

While some scholars suggest that the lack of consensus is due to the shift in the course of the river over time, there are others who say that the British cartographers in the consequent years kept shifting the line demarcating the river eastwards for strategic reasons.

By enacting the constitution amendment, Nepal has etched its territorial claim in stone which would make any concession by this or any future government of Nepal virtually unthinkable.

After the vote, Nepalese took a conciliatory position saying "We are for starting dialogue soon. The problem will be resolved through diplomacy."

However, million dollar question is what will diplomacy achieve?

India should be prepared to engage in a dialogue on this and other outstanding border issues, but Nepal's brinkmanship has made it much more difficult to explore a mutually acceptable solution.

However, India has clarified that "unilateral act is not based on historical facts and evidence" and that it would not accept "artificial enlargement of territorial claims".

The Ministry of External Affairs has also said that it hopes that Nepal will create a positive atmosphere for dialogue to resolve the issue.

Recent visit of Sher Bahadur Deuba to India:

Recently in 2022, newly elected PM of Nepal visited India and led to following breakthroughs in the relationship:

- Solu Corridor: Indian side handed over the Solu Corridor, a 90-km, 132 kV power transmission line built for Rs 200 crore under an Indian line of credit. The line will help bring electricity to several remote districts in northeastern Nepal by connecting them to the country's national grid.
- RuPay card launched in Nepal. This is expected to facilitate bilateral tourist flows. Nepal is the fourth country, after Bhutan, Singapore and the UAE, where RuPay is live.
- Nepal signed a framework agreement to join the India-led International Solar Alliance (becoming the 105th member country).
- Signed three more pacts – a memorandum of understanding (MoU) on enhancing technical cooperation in the railways sector, and two agreements between Indian Oil Corporation and Nepal Oil Corporation for the supply of petroleum products for five years and for sharing of technical expertise.
- Joint Vision Statement on Power Sector Cooperation: India called for taking full advantage of opportunities in the power sector, including through joint development of power generation projects in Nepal and development of crossborder transmission infrastructure. Nepal also appreciated India's recent crossborder electricity trade regulations that have enabled it to access India's market and trade power with India. Nepal exports its surplus power to India.
- They agreed to expedite work on the delayed Pancheshwar multipurpose dam project (on Mahakali river) that is considered to be a game changer for the development of the region.
- Border Issue: Nepalese Prime Minister urged his Indian counterpart Narendra Modi to take steps to resolve a boundary dispute. The Indian side made it clear

both countries need to address the boundary issue through dialogue and to avoid the politicisation of such issues.

Way forward for India – Nepal relations:

There is a sense of discomfort in Nepal to the notion of being under siege as the country is landlocked and dependent on transit through India for trade with third countries.

There is a need to address such anxieties by developing a bilateral relationship of mutual trust and mutual benefit. Nepal as a developing economy will need investment in key areas of its growth such as agriculture, manufacturing, information technology and tourism.

India must focus on these areas and assist Nepal in its development. India's aid to the country has surged significantly but Nepal needs more investment, economic cooperation and timely completion of bilateral projects.

New Delhi can correct the trade imbalance with the Himalayan country only by pouring in more investment and assisting it in the areas of manufacture. India has an opportunity

Amangarh Tiger reserve

The Amangarh Tiger Reserve is situated in the Bijnor district of Uttar Pradesh, India. It was declared a wildlife sanctuary in 2012 and later designated as one of the Tiger Reserves in India in 2014. The reserve covers an area of 71.65 square kilometers and is surrounded by dense forests and hilly terrain.

As of the last census conducted in 2018, the Amangarh Tiger Reserve is home to 11 tigers. The reserve is also home to a variety of other wildlife such as leopards, wild boars, hyenas, jackals, and various species of deer.

Amangarh Tiger Reserve is situated at the foothills of the Himalayas and is blessed with several rivers and streams, including the Ramganga River, which is the lifeline of the region. The reserve also has several hills and ridges, including the Amangarh Hills, which provide an ideal habitat for the animals. Other notable relief features include the

vast grasslands, dense forests, and wetlands that dot the landscape of the reserve. These varied features provide an ideal habitat for a diverse range of flora and fauna

Powassan virus

Powassan virus is a Flavivirus, which is transmitted by ticks. This virus is found in North America and Russian Far East. It is named after the town of Powassan, Ontario. In Powassan town, this virus was first identified in 1958, for the first time.

Powassan virus is found in the warm climate across Eurasia. In Eurasia, it is a part of tick-borne encephalitis virus-complex. In Russian Far East, it appears to be introduced there 70 years ago.

It spread through the bite of a tick infected with Powassan virus.

Symptoms of virus

Many people infected with the virus have no symptoms. Some shows mild symptoms like- Fever, Headache, Weakness, Vomiting, Encephalitis, Seizures, and Meningitis. Long-term neurologic symptoms include headaches and memory problems. Death is possible but it is rare

Treatment of Powassan virus

There is no specific medicine to treat the disease. In case person has the virus, they should see a doctor immediately for diagnosis and treatment.

Chatrapati Shivaji Maharaja

Angel tax

The Finance Ministry recently exempted investors from 21 countries from the levy of angel tax for non-resident investment in unlisted Indian startups.

About Angel Tax:

- It is a tax levied on the capital raised via the issue of shares by unlisted companies if the share price of issued shares is seen in excess of the fair market value of the company.
- The excess funds raised at prices above fair value is treated as income, on which tax is levied.
- Angel tax essentially derives its genesis from section 56(2)(viib) of the Income Tax Act, 1961.

- The finance act, 2012 introduced section 56(2)(viib) in the IT act which taxes any investment, received by any unlisted Indian company, valued above the fair market value by treating it as income.
- Rate: It is levied at a rate of 30.9% on net investments in excess of the fair market value.
- Objective: To deter the generation and use of unaccounted money through subscription of shares of a closely held company, at a value which is higher than fair market value.
- In 2019, the Government announced an exemption from the Angel Tax for startups on fulfillment of certain conditions. These are,
 - The startup should be recognized by the Department for Promotion of Industry and Internal Trade (DPIIT) as an eligible startup.
 - The aggregate amount of paid-up share capital and share premium of the Startup cannot be more than ₹25 crores. This amount does not include the money raised from Non-Resident Indians (NRIs), Venture Capital Firms, and specified companies.
 - For angel investors, the amount of investment that exceeds the fair market value can be claimed for a 100% tax exemption.
However, the investor must have a net worth of ₹2 crores or an income of more than ₹25 Lakh in the past 3 fiscal years.
- Previously, angel tax provisions were applicable only for investments received from resident investors.
- However, Finance Bill 2023 has extended its applicability to non-resident investors as well.

Dal lake:

Thousands of fish in the Dal Lake have died over the past few days with authorities blaming a sudden fluctuation in temperature in the region.

About Dal Lake:

•Location:

- It is a lake in Srinagar, the summer capital of Jammu and Kashmir.
- It is surrounded by the Pir Panjal mountains.
- It is integral to tourism and recreation in Kashmir and is named the "Jewel in the crown of Kashmir" or "Srinagar's Jewel".
- Spread across an area of around 26 square kilometers, it is the second largest lake in Jammu & Kashmir
- During the winter season, the temperature sometimes reaches -11°C (12°F), freezing the lake.
- The lake is part of a natural wetland which covers 21.1 square kilometres (8.1 sq mi), including its floating gardens. The floating gardens, known as "Raad" in Kashmiri, blossom with lotus flowers during July and August.
- The wetland is divided by causeways into four basins; Gagribal, Lokut Dal, Bod Dal and Nagin (although Nagin is also considered as an independent lake).

•Islands:

- Dal Lake includes 3 islands, 2 of which are marked with beautiful Chinar trees.
- The island located on the Lakut Dal is known as Roph Lank (Silver Island), is marked with the presence of majestic Chinar trees at the four corners, thus known as Char-Chinari (Four Chinars).
- The second Chinar Island, known as Sone Lank (Gold Island), is located on the Bod Dal (Big Dal) and overlooks the holy shrine of Hazratbal.
- Dal Lake is also popular for the floating market (known as Raad) where vendors have their own Shikaras and approach tourists.

Exo Mars trace gas orbiter

The European Space Agency's ExoMars Trace Gas Orbiter (TGO) recently flashed an encoded message to Earth from its orbit around Mars.

About ExoMars Trace Gas Orbiter (TGO):

•TGO is the first in a series of joint missions between the European Space Agency (ESA) and Roscosmos, the Russian space agency.

•Goal:

To gain a better understanding of methane and other atmospheric gases that are present in small concentrations (less than 1% of the atmosphere) in the Martian atmosphere.

•The orbiter's sensitivity to hydrogen has also allowed it to search for water buried underneath shallow layers of Martian soil.

•It's also meant to test technology for future missions.

•It was launched in March 2016 and began operations after entering Mars orbit on Oct. 19, 2016.

•TGO carried the Schiaparelli lander with it to Mars. However, it was crashed during landing.

•The spacecraft itself is a 3.2 meter by 2 meter by 2 meter box, fitted with one antenna to communicate with Earth and another to communicate with spacecraft on the surface of Mars.

•It is powered by a pair of solar arrays that protrude from its sides like wings, along with two small batteries to keep it running during eclipses, when it doesn't receive any sunlight.

•It carries several instruments including,

- NOMAD(Nadir and Occultation for MArs Discovery);
- ACS (Atmospheric Chemistry Suite);

- CaSSIS (Colour and Stereo Surface Imaging System);
- FREND (Fine Resolution Epithermal Neutron Detector);

Schizophrenia

Recently, Department of Empowerment of Persons with Disabilities (DEPwD) commemorated Schizophrenia to raise awareness and to reduce stigma around mental illness.

About Schizophrenia:

- Schizophrenia is a chronic, severe mental disorder that affects the way a person thinks, acts, expresses emotions, perceives reality, and relates to others.
- It mostly affects young adults in the productive age group.
- One in every 100 people experiences schizophrenia and men are twice as likely to develop this condition as compared to women

Symptoms of Schizophrenia:

- Schizophrenia symptoms can differ from person to person, but they generally fall into three main categories: psychotic, negative, and cognitive.
- **Psychotic symptoms** include Hallucinations, Delusions, thought disorder, Movement disorder.
- **Negative symptoms** include loss of motivation, loss of interest or enjoyment in daily activities, withdrawal from social life, difficulty showing emotions, and difficulty functioning normally.
- **Cognitive symptoms** include problems in attention, concentration, and memory.

Risk factors for schizophrenia:

- Genetics: Schizophrenia sometimes runs in families. However just because one family member has schizophrenia, it does not mean that other members of the family also will have it.
- Environment:
- Research suggests that a combination of genetic factors and aspects of a person's environment and life experiences may play a role in the

development of schizophrenia.

- Brain structure and function:

- Research shows that people with schizophrenia may be more likely to have differences in the size of certain brain areas and in connections between brain areas.

Treatment:

- Though there is no cure for schizophrenia,

- A variety of antipsychotic medications are effective in reducing the psychotic symptoms present in the acute phase of the illness.

- Psychological treatments such as cognitive behavioral therapy or supportive psychotherapy may reduce symptoms and enhance function

Pradhan Mantri Rashtriya Bal Puraskar:

About Pradhan Mantri Rashtriya Bal Puraskar:

- The Government conducts the prestigious Pradhan Mantri Rashtriya Bal Puraskar every year to give due recognition to children with exceptional abilities, who have achieved extraordinary recognition in the fields of Bravery, Sports, Social Service, Science & Technology, Environment and others.

- Age Limit:

- From 5 years to 18 years (as on 31st August of respective year).

- It is given under two categories

Bal Shakti Puraskar To be given as recognition to children with exceptional abilities and outstanding achievement in the fields of innovation, scholastic, sports, arts & culture, social service and bravery.

• Bal Kalyan Puraskar

- Individual:

- To individuals who have made an outstanding contribution towards service for children in the field of Child Development, Child Protection and Child Welfare for not less than 7 years.

• Institutions:

- To institutions who have done exceptional work for the cause of children in any field of child welfare

Selection:

- A National Selection Committee, headed by Minister or Minister of state, Women and Child Development Ministry will finalize the names of the awardees.
- These Awards are given by the President in a special ceremony held in January every year.
- The awards carry a Cash prize of one lakh rupees, a medal and a certificate

8th Governing council meeting of NITI Aayog

About Governing council meeting:

- The theme of this meeting will be "Viksit Bharat @ 2047: Role of Team India".
- Discussions will be made on eight prominent themes including- Viksit Bharat@2047, MSMEs, infrastructure and investments, minimizing compliances, women empowerment, health and nutrition, skill development, and Gati Shakti for area development and social infrastructure in the meeting

The Governing Council of NITI Aayog:

•Composition:

- The Governing Council of NITI Aayog comprises-
 - The Hon'ble Prime Minister of India,
 - Chief Ministers of all the States and Union Territories with legislature,
 - Lt Governors of other UTs,
 - Ex-Officio Members,
 - Vice Chairman,
 - NITI Aayog; Full-Time Members,
 - Special Invitees,
- It was reconstituted vide a notification in February 2021 by the Cabinet Secretariat.

- It is the premier body tasked with evolving a shared vision of national priorities and strategies, with the active involvement of States, in shaping the development narrative.

- **Objectives:**

- Cooperative federalism.
- Presents a platform to discuss inter-Sectoral.
- Inter-departmental and federal issues to accelerate the implementation of the national development agenda.
- So far, seven meetings of the Governing Council have been held. The first meeting of the council took place in 2015.



SPARTLAY ISLANDS

A recent report indicates that the Chinese militarization efforts in the Spratly Islands have transformed these islands into strategic military outposts.

About Spratly Islands:

• **Location:**

- The Spratly Islands consist of more than 100 small islands or reefs in the South China Sea.
- They are located north of insular Malaysia and are roughly midway between Vietnam and the Philippines.

• **Claims:**

- They are claimed in their entirety by China, Taiwan, and Vietnam, while portions are claimed by Malaysia and the Philippines
- Although Brunei did not claim any territory in the Spratlys, it claims an exclusive economic zone over this area that contained a Spratly reef
- They are spread out over a vast area of ocean measuring some 158,000 square miles (409,000 square km).

• **Climate:** Tropical

• **Islands:**

- A great number of them are submerged.
- Of the 12 main naturally occurring islets, the largest is the 90-acre (36-hectare) Itu Aba.
- Another, called Spratly Island or Storm Island, measures 900 by 1,500 feet (275 by 450 metres).
- Turtles and seabirds are the only wildlife in these islands. There is no permanent human habitation.

• **History:**

- France held them between 1933 and 1939.

- During World War II Japan occupied the archipelago and developed it as a submarine base.
- After the war the Chinese Nationalist government established a garrison on Itu Aba, which the Nationalists maintained after their exile to Taiwan in 1949.
- When Japan renounced its claim to the islands in 1951, Taiwan, mainland China, and Vietnam all declared themselves the rightful owners, and the Philippines added a claim based on proximity in 1955

XPoSat

The Indian Space Research Organisation is collaborating with the Raman Research Institute (RRI), Bengaluru to build the X-Ray Polarimeter Satellite (XPoSat) that is scheduled to be launched later this year.

What is the XPoSat mission?

- XPoSat will study various dynamics of bright astronomical X-ray sources in extreme conditions.
- It has been billed as India's first, and only the world's second polarimetry mission that is meant to study various dynamics of bright astronomical X-ray sources in extreme conditions.
- The other such major mission is NASA's Imaging X-ray Polarimetry Explorer (IXPE) that was launched in 2021.

How are X-Rays witnessed in space?

- X-rays have much higher energy and much shorter wavelengths, between 0.03 and 3 nanometers, so small that some x-rays are no bigger than a single atom of many elements.
- The physical temperature of an object determines the wavelength of the radiation it emits. The hotter the object, the shorter the wavelength of peak emission.

- X-rays come from objects that are millions of degrees Celsius — such as pulsars, galactic supernova remnants, and black holes.
- Like all forms of light, X-rays consist of moving electric and magnetic waves. Usually, peaks and valleys of these waves move in random directions. Polarised light is more organised with two types of waves vibrating in the same direction

BIRD FLU

Bird flu has been reported among wild geese in Himachal Pradesh, crows in Rajasthan and Madhya Pradesh and ducks in Kerala. In Haryana, around one lakh poultry birds have died mysteriously in the last few days

About:

Avian influenza or bird flu is a highly contagious viral disease caused by Influenza Type A viruses which generally affects poultry birds such as chickens and turkeys.

There are many strains of the virus – some of them are mild and may merely cause a low egg production or other mild symptoms among chickens, while others are severe and lethal.

Wild aquatic birds such as ducks and geese are the natural reservoir of Influenza A viruses and the central players in the ecology of these viruses.

History of bird flu among humans:

It was in 1997 when humans are first known to have contracted bird flu following an outbreak in a live bird market of Hong Kong. It was the H5N1 strain of the virus.

Subsequently, several other strains of the virus such as H5N2 and H9N2 spread from animals to humans, thus becoming a global public health concern.

Does it spread easily to humans?

No, it does not. Generally, people coming in close contact with infected alive or dead birds have contracted the H5N1 bird flu, and it does not usually spread from person to person.

There is also no evidence, that the disease can be spread to people through properly prepared and cooked poultry food. The virus is sensitive to heat, and dies in cooking temperatures.

Important Info :

Symptoms:

Unlike in birds, where it generally infects the gut, the avian influenza attacks the respiratory tract of humans and may cause severe respiratory illnesses such as pneumonia or Acute Respiratory Distress Syndrome (ARDS).

Its early symptoms include fever, cough, sore throat, and sometimes abdominal pain and diarrhoea.

Treatment:

Antiviral drugs, especially oseltamivir, improve the prospects of survival in humans.

Among poultry birds, vaccination strategies advised by the World Organisation for Animal Health can be used to prevent the flu.

Anaemia

It is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status.

Iron deficiency is the most common cause of anaemia, although other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can all cause anaemia.

In its severe form, it is associated with fatigue, weakness, dizziness and drowsiness. Pregnant women and children are particularly vulnerable.

According to the National Family Health Survey 2019-20, Indian women and children are overwhelmingly anaemic.

Under phase I, 22 states and UTs were surveyed and in a majority of these states and UTs, more than half the children and women were found to be anaemic.

According to the World Health Organization (WHO), women in the reproductive age group and having haemoglobin levels lower than 12 grams per decilitre (g / dL), as well as children under five with haemoglobin levels lower than 11.0 g / dL are considered anaemic.

Government Initiatives for Controlling Anaemia

Health is a State subject and the primary responsibility for strengthening health care services including implementation of national programs lies with the respective State/UT government.

The Ministry of Health and Family Welfare provides financial and technical support to States/UTs under the National Health Mission.

Weekly Iron and Folic Acid Supplementation (WIFS): This Programme is being implemented to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys.

The intervention under WIFS includes supervised weekly ingestion of Iron Folic Acid (IFA) tablets.

Health Management Information System & Mother Child Tracking System: It is being implemented for reporting and tracking the cases of anaemic and severely anaemic pregnant women.

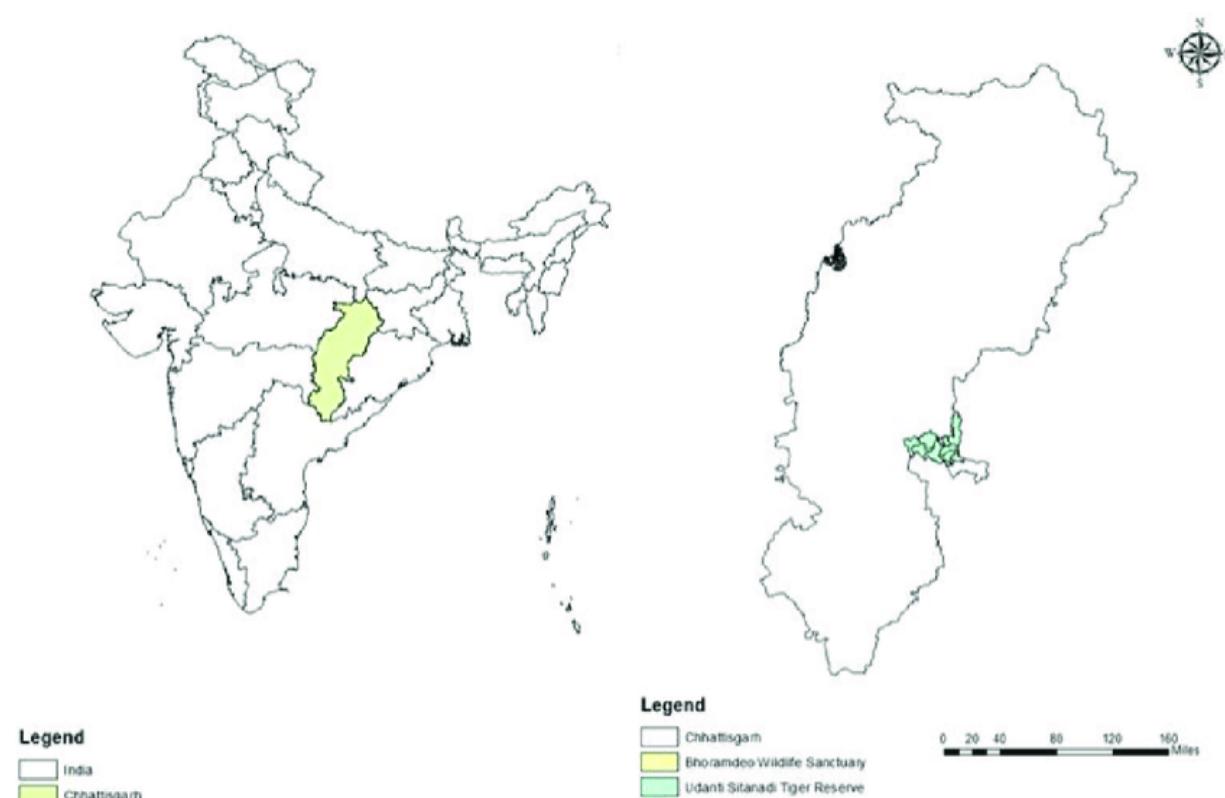
Universal Screening of Pregnant Women for Anaemia: It is a part of Ante-Natal Care (ANC) and all pregnant women are provided iron and folic acid tablets during their ante-

natal visits through the existing network of sub-centres and primary health centres and other health facilities as well as through outreach activities at Village Health & Nutrition Days (VHNDs).

Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA): It has been launched to focus on conducting special ANC check up on 9th of every month with the help of Medical officers to detect and treat cases of anaemia.

Operationalization of Blood Bank in District Hospitals and Blood Storage Unit in sub district facilities such as Sub-Divisional Hospital/ Community Health Centers is being taken to tackle complications due to severe anaemia.

Udanti Sitanadi Tiger reserve



Udanti Sitanadi Tiger Reserve:

Location: It is located in the Indian state of Chhattisgarh.

Udanti and Sitanadi are two wildlife sanctuaries combined together, covering a total area of 1842.54 kilometre square.

It was declared a tiger reserve in the year 2008-09.

The Udanti river flows through the Reserve. There are few perennial springs including the famous Deodhara and Godene falls.

Topography: The topography of the area is a broken mass of land traversed by innumerable hill ranges intercepted by strips of plains.

Flora:

The flora of the tiger reserve contains various types of forest crop mixed with Sal forest.

Dry Deciduous Forests, Tropical and Sub-Tropical vegetation is also observed here.

Fauna:

All the representative faunal species of Central India are found in both the Core areas of UdantiSitanadi Tiger reserve.

Asiatic Wild Buffalo is the key endangered species found in the Core Area.

Apart from the tiger other endangered and rare species are Indian Wolf, Leopard, Sloth Bear and Mouse Deer.

Wasp 18 B

Water found by James Webs telescope

NASA has discovered water on a planet outside the Solar System. The name of the planet is **WASP-18b** and it was discovered in 2009 with the help of the **Transiting Exoplanet Survey Satellite (TESS), Hubble, and Spitzer telescopes**. The James Webb Space Telescope has discovered water here.

This planet is 400 light years away from Earth and astronomers have found steam and gas in its atmosphere.

Salient Features Of This Planet

- It is called **Ultra Hot Gas Giant**.
- This planet is **10 times bigger** than Jupiter.
- Here **one year is equal to 23 hours**.
- WASP-18b has recorded temperatures of up to **2,700 degrees C**. Scientists say that due to such high temperatures, the water evaporated and spread in the atmosphere.
- NASA said that the planet always faces its star, just as one side of the Moon always faces Earth.

WASP-39b Is Also Present Outside The Solar System

On 29 August 2022, carbon dioxide (CO₂) was detected on the exoplanet WASP-39 b outside the Solar System. This planet is at a distance of 700 light years from the Earth. This planet is revolving around a star like the Sun. While its weight is a quarter of the weight of Jupiter, WASP-39b appears 30% bloated compared to Jupiter due to gas. However, its diameter (diameter) is 1.3 times more than that of Jupiter.

The temperature on WASP-39 b is around 900 degrees C. It revolves very close to its star. Here one year is equal to 4 days. According to researchers, the planet was discovered only in 2011, but its picture has now come to the fore. It was discovered with the help of a radio telescope.

How Was CO₂ Detected?

The Hubble and Spitzer telescopes detected water vapor, sodium, and potassium in WASP-39 b's atmosphere. Now the James Webb telescope has detected the presence of CO₂. Scientists have come to know about this by looking at the color of the gas. Actually, gases absorb certain types of colours so that we can detect them.

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James Webb Space Telescope's First Images

- 18 Jul 2022

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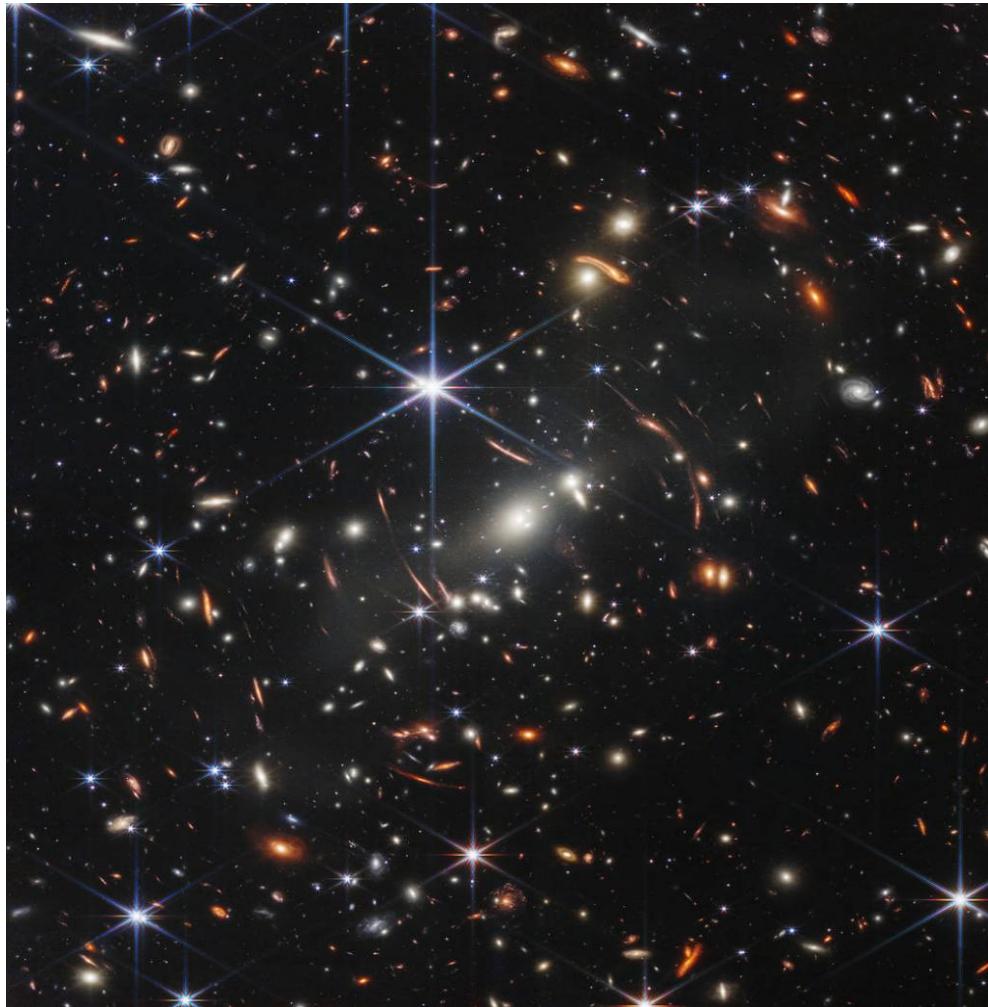
For Prelims:James Webb Telescope, National Aeronautics and Space Administration, Hubble Telescope, European Space Agency

For Mains:James Webb Telescope's new Discovery about Universe

Why in News?

Recently, [**National Aeronautics and Space Administration's \(NASA\)**](#)released a set of images and science products of five different regions of the sky, taken with the James Webb Space Telescope.

- It includes a**galaxy cluster which appeared 4.6 billion years ago.**
- It is the deepest and finest infrared image of some of the **most distant and oldest galaxies ever discovered.**
- These **characteristics will aid scientists in learning more about each of these ancient galaxies' mass, age, history, and composition.**



What is James Webb Space Telescope?

- **About:**

- The telescope is the**result of an international collaboration**between**NASA, the European Space Agency (ESA) and the Canadian Space Agency** which was launched in December 2021.
- It is currently at a point in space known as the Sun-Earth **L2 Lagrange point**, approximately 1.5 million km beyond Earth's orbit around the Sun.
 - The Lagrange Point 2 is **one of the five points in the orbital plane of the Earth-Sun system.**
 - Named after Italian-French mathematician Josephy-Louis Lagrange, **the points are in any revolving two-body system like Earth and Sun**, marking where the gravitational forces of the two large bodies cancel each other out.

- Objects placed at these positions are **relatively stable and require minimal external energy or fuel to keep themselves there**, and so many instruments are positioned here.
- It's the largest, most powerful infrared space telescope ever built.
- It's the successor to Hubble Telescope.
- It can **see backwards in time** to just after the Big Bang by looking for galaxies that are so far away that the light has taken many billions of years to get from those galaxies to our telescopes
- **Objectives:**
 - It will examine every phase of cosmic history: from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our own Solar System.
 - The goals for the **Webb** can be grouped into **four themes**.
 - The first is to **look back around 13.5 billion years** to see the first stars and galaxies forming out of the darkness of the early universe.
 - Second, to **compare the faintest, earliest galaxies to today's grand spirals** and understand how galaxies assemble over billions of years.
 - Third, to see where stars and planetary systems are being born.
 - Fourth, to **observe the atmospheres of extrasolar planets (beyond our solar system)**, and perhaps find the building blocks of life elsewhere in the universe.

What is the Difference between Hubble & James Webb Telescope?

- **Wavelength:**
 - The **James Webb Space Telescope** would be observing infrared radiations most primarily covering between 0.6 to 28 microns.
 - **Hubble's** work involved watching the ultraviolet and the visible spectrum of light. It observes the range of 0.8 to 2.5 microns.
- **Orbits:**
 - Webb Telescope would not be orbiting the Earth. It would be orbiting the sun from 1.5 million kilometres away from the Earth.
 - Hubble orbits the Earth at an altitude of 575 kilometres from it.
- **Vision:**
 - As per NASA, Hubble can see the smallest and the newest of all galaxies.
 - Webb would be able to see the Newborn galaxies as well.

- Webb's near and mid-infrared instruments would be helpful in studying the first formed galaxies and exoplanets.

What are the Other Space Exploration Missions?

- **Pioneer**
 - It was the **first spacecraft to visit the solar system's most photogenic gas giants, Jupiter and Saturn.**
 - Pioneer 10 was the first probe to travel through the solar system's asteroid belt, a field of orbiting rocks between Mars and Jupiter.
- **Voyager**
 - Shortly after the Pioneers made their flybys, the Voyager 1 and Voyager 2 probes followed. They made **many important discoveries about Jupiter and Saturn**, including rings around Jupiter and the presence of volcanism on Jupiter's moon.
 - Voyager 1 is **currently the farthest man-made object from Earth**, at more than a hundred times the distance from the Earth to the sun, and more than twice as far as Pluto.
- **Chandra**
 - Since 1999, the Chandra X-ray Observatory has been **scanning the skies in X-ray light, looking at some of the most distant and bizarre astronomical events.**
 - Because Earth's pesky atmosphere blocks out most X-rays, astronomers couldn't view the universe in this high-energy, short-wavelength light until they sent Chandra up to space.
- **SPHEREx's**
 - The **Spectro-Photometer for the History of the Universe and Ices Explorer (SPHEREx)** is a planned two-year mission **that will survey the sky in optical as well as near-infrared light which, though not visible to the human eye, serves as a powerful tool for answering cosmic questions.**
 - It would be launched in 2024.
 - Astronomers will use the mission to gather data on more than 300 million galaxies, as well as, more than 100 million stars in our own Milky Way.

FLAPSHELL TURTLE

Indian Flapshell Turtles

About:

The Indian flapshell turtle is a **freshwater species** of turtle and is found in many states.

The “flap-shelled” name stems from the presence of **femoral flaps located on the plastron**. These flaps of skin cover the limbs when they retract into the shell.

It is a relatively **small soft-shell turtle** with a carapace length of up to 350 millimetres.

Scientific Name: *Lissemys punctata*

Distribution:

They are found in **Pakistan, India, Sri Lanka, Nepal, Bangladesh (Indus and Ganges drainages), and Myanmar (Irrawaddy and Salween Rivers)**.

They live in the **shallow, quiet, often stagnant waters of rivers, streams, marshes, ponds, lakes and irrigation canals, and tanks**.

These turtles prefer waters with sand or mud bottoms because of their tendency to burrow.

Conservation Status:

IUCN Red List: **Vulnerable**

CITES: **Appendix II**

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

Steps Taken for Conservation:

KURMA App:

It has a built-in digital field guide covering 29 species of freshwater turtles and tortoises of India.

It was developed by the Indian Turtle Conservation Action Network (ITCAN) in collaboration with the Turtle Survival Alliance-India and Wildlife Conservation Society-India.

World Turtle Day is observed every year on 23rd May.

Indian Black Turtle:

The Indian black turtle is a medium-sized found across the Indian subcontinent.

It is an aquatic species, mainly associated with standing water bodies, sometimes rivers.

The species is an omnivore, consuming both aquatic macrophytes and invertebrates.

The species shows a crepuscular to a nocturnal lifestyle, with individuals seen foraging after dark along the edges of water bodies.

The distribution in India includes the hill ranges of the Western Ghats, south of Gujarat, and the southeast coast, and then a separate disjunct distribution in northern and northeastern India.

Conservation status:

IUCN: Least concern

Generic testing:

The Director General of Health Services (DGHS) issued yet another order on May 12 reiterating directions that doctors in Central government hospitals prescribe only generic medicines instead of branded drugs.

The driving force behind these office orders is the standard trope that doctors are in cahoots with the pharmaceutical industry wherein the doctor receives a kickback for each prescription of a particular company's drug. Thus, by forcing them to write only the generic names of medicines, the hope is that the pharmacist will provide the patient with the cheapest available generic drug and thus save them the cost of the more expensive branded drugs. This policy objective obviously rests on the assumption that the pharmacist is a benevolent individual who does not have his own incentives to sell the patient more expensive branded drugs. Such orders have been passed earlier and

the most recent order does not hide its irritation at having to repeat previous orders; it threatens government doctors with unspecified “further action” for failing to comply with these directions.

Quality of generic medicines

But before threatening its doctors, perhaps the Directorate should conduct a survey among government doctors asking them to explain their reluctance to write prescriptions with just the generic names. It is no secret that many Indian doctors in both the public and private sector simply do not trust the quality of all generic medicines in the Indian market. They have a valid reason for this: India has lagged behind countries like the U.S. in creating the appropriate legal and scientific standards that provide guarantees to doctors on the interchangeability of generic medicines with each other and the innovator drug.

The U.S. created this environment of trust by mandating as far back as in 1977 that most, but not all, generic drugs be tested on human volunteers in order to measure the rate at which the drug is bioavailable; i.e. the rate at which the drug dissolves in the bloodstream. Such testing is required because generic manufacturers may use different excipients like binders, coating and punching machines which directly affect the ability of the drug to dissolve in the blood. If the dissolution profile of the generic drug is same or similar to that of the innovator drug over a time period, it is declared to be “bio-equivalent” and hence therapeutically interchangeable with the innovator drug. India mandated such bio-equivalence testing only in 2017. Even then, the regulations were vague. But the far more worrying aspect from a public health perspective is the fact that a recommendation by the Drugs Technical Advisory Board (DTAB) to ensure that existing generic drugs, approved prior to 2017, also be tested for bio-equivalence, was ignored by the government. This means that a vast majority of drugs in the Indian market have never been tested for bio-equivalence. Hence, the government cannot provide doctors with a legal guarantee that all generic medicines in the Indian market are, in fact, interchangeable with the innovator drug.

If the government cannot provide such a legal guarantee, it should not be barring doctors against prescribing their preferred brands. Many doctors have developed faith in particular brands, not because they receive bribes but because patient feedback has taught them that other brands do not work as effectively.

Stability testing

The lack of bio-equivalence testing is just one of the issues with generic medicines in India. The other massive problem is the issue of stability testing. The key challenge to manufacturing any drug is to ensure that it remains stable through a stressed supply

chain in differing conditions of heat and humidity. An unstable drug will start decomposing, possibly reducing its efficacy. Sometimes a tablet will just crumble into powder when removed from its packaging. In other instances, the tablet will be visibly discoloured or if it is a liquid, particulate matter may be visible. Many of these problems can be checked if the law prescribed mandatory stability testing prior to providing marketing approval and also while the drug is in the market. This common requirement across the world became mandatory in India only in 2018, after the government managed to overcome immense opposition from the pharmaceutical industry. But once again, the new regulations not only lacked scientific rigour, but also did not apply retrospectively to generic drugs approved prior to 2018. This means that many generic medicines in the Indian market have not been subjected to mandatory stability testing. This could be an additional reason contributing to quality issues that undermines the trust of government doctors in generic drugs.

Given these issues related to the quality of generic drugs, it is not appropriate for the DGHS to force doctors to prescribe drugs by generic names. Rather, the DGHS must work towards resolving the genuine concerns being raised by doctors. A starting point would be to ask for regulations which require pharma companies to identify on their packaging whether a drug has been tested for bio-equivalence and stability as required by the law. Building the confidence of doctors in generic medicine serves public interest better than threatening them with punitive action for failing to comply with directives on mandatory prescription of drugs by their generic names.

KAVACH SYSTEM

Kavach: **Automatic Train Protection System**

Context :- Recently, the Indian Railways tested 'Kavach'-Automatic Train Protection System by making two trains move towards each other at full speed.

The **Kavach system** was announced in the **2022 Union Budget** as a part of the **Atmanirbhar Bharat initiative**. Around 2,000 km of rail network is planned to be brought under the indigenous system to enable safety and capacity augmentation in 2022-23.

What is Kavach?

It is India's own automatic protection system, which is in development since 2012, under the name **Train Collision Avoidance System (TCAS)**, which got rechristened Kavach or "armour".

It is a set of electronic devices and **Radio Frequency Identification (RFID)** devices installed in locomotives, in the signalling system as well as the tracks.

They connect to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers, all based on the logic programmed into them.

TCAS or Kavach includes the key elements from already existing, and tried and tested systems like the European Train Protection and Warning System, and the indigenous Anti Collision Device.

It will also carry features of the high-tech European Train Control System Level-2 in future.

The current form of Kavach adheres to the highest level of safety and reliability standard called Safety Integrity Level (SIL)4.

SIL comes from two voluntary standards used by plant owners/operators to quantify safety performance requirements for hazardous operations.

There are four SIL Levels (1-4). A higher SIL Level means a greater process hazard and a higher level of protection required.

In the new avatar, India wants to position Kavach as an exportable system, a cheaper alternative to the European systems in vogue across the world.

While now Kavach uses Ultra High Frequency, work is on to make it compatible with **4G Long Term Evolution (LTE) technology** and make the product for global markets.

Work is on to make the system such that it can be compatible with other already installed systems globally.

What is the Significance?

Safety:

The Kavach system will help prevent accidents on rail tracks like collision of trains.

Once the system is activated, all trains within a 5-km range will halt to provide protection for trains on adjacent tracks.

Currently, the loco-pilots or assistant loco-pilots have to look out for caution signs and signals.

Cost:

It will only cost Rs 50 lakh per kilometre to operate in comparison to about Rs 2 crore worldwide.

Communication:

It will also include stationary equipment to gather signalling inputs and relay them to a central system to enable seamless communication with the train crew and stations.

Initiatives Related to Railways

Overhead Traction System

Railway Energy Management Company Limited

Transit Oriented Development

National Rail Transportation Institute

Amchang wildlife sanctuary

About Amchang Wildlife Sanctuary:

- The Amchang Wildlife sanctuary is located on the eastern fringe of Guwahati,
- It comprises three Reserve forests-Khanapara, Amchang, and South Amchang.
- It stretches from the **Brahmaputra River in the north** to the hilly forests of Meghalaya in the south, forming a continuous forest belt through Meghalaya's Maradakdola Reserve Forests.
- **Flora:** Khasi Hill Sal Forests, East Himalayan Mixed Deciduous Forest, Eastern Alluvial Secondary Semi-evergreen Forests and East Himalayan Sal Forests.
- **Fauna:** Flying fox, Slow loris, Assamese macaque, Rhesus macaque, Hoolock gibbon, Porcupine. White-backed Vulture, Slender-billed Vulture.

- **Tree yellow butterflies** (gancana harina) are found at the Amchang wildlife sanctuary which is indigenous to Thailand, Malaysia, Singapore and northeast India



NIRF ranking:

About:

- Launch: The National Institutional Ranking Framework (NIRF) was approved by the Ministry of Education (Erstwhile Ministry of Human Resource Development) in September 2015.
- It is the first-ever effort by the government to rank Higher Education Institutions (HEIs) in the country.
- Participation in NIRF was made compulsory for all government-run educational institutions in 2018
- Assessment on Five Parameters:
 - Teaching, Learning and Resources (TLR)
 - Research and Professional Practice (RP)
 - Graduation Outcomes (GO)
 - Outreach and Inclusivity (OI)
 - Peer Perception.
- 11 Categories: Best institutions across 11 categories are listed out - overall national ranking, universities, engineering, college, medical, management, pharmacy, law, architecture, dental and research.

- Reason for Launch: The subjectivity in the ranking methodology developed by QS World University Rankings and the Times Higher Education World University Ranking led India to start its own ranking system for Indian HEIs on the line of Shanghai Rankings.
- NIRF is in its sixth year, but it continues to only rank Indian HEIs whereas Shanghai Rankings were international in character from the first year itself.
- The long-term plan of NIRF is to make it an international league table.

Himalayan Brown bear

Himalayan Brown Bear

Context :- The Himalayan brown bear (*Ursus arctos isabellinus*) population in **Kashmir** is facing numerous challenges that threaten both their survival and human safety.

Recent incidents of bears entering residential areas and **wrecking graveyards** have raised concerns among local communities.

These incidents highlight the urgent need to address the underlying factors causing this behavior and safeguard the habitat of this **critically endangered species**.

Himalayan Brown Bears

About:

Himalayan brown bears are a subspecies of brown bears that inhabit the **high-altitude regions of the Himalayas, ranging from Pakistan to Bhutan**.

They have **thick fur** that is most often **sandy or reddish-brown in color**.

They can grow up to 2.2 meters long and weigh up to 250 kilograms

Status:

IUCN Red List- **Critically Endangered**

Brown bear (*Ursus arctos*) is listed as Least Concern.

CITES - **Appendix I.**

Only the populations of Bhutan, China, Mexico and Mongolia; all other populations are included in Appendix II.

Indian Wildlife (Protection) Act of 1972 - Schedule 1.

Food: Omnivorous.

Behavior:

They are nocturnal, and their sense of smell is acutely developed and believed to be their principal means of finding food.

Threat:

Human-animal conflict, rapid habitat loss, poaching for fur, claws, and organs, and, in some rare cases, bear baiting.

Range:

North-western and central Himalaya, including India, Pakistan, Nepal, the Tibetan Autonomous Region of China, and Bhutan.

Challenges:

Insufficient Food Sources and Altered Behavior:

The bears' peculiar behavior of digging up graves and wandering into residential areas can be attributed to insufficient food in their natural habitats.

A study conducted by Wildlife SOS, an organization established with the goal of making lasting changes to protect and conserve India's natural heritage, forests, and biodiversity, revealed that a significant portion of the bears' diet in Kashmir consists of scavenged garbage, including plastic bags, chocolate wrappers, and other edible waste. This disrupts their natural foraging patterns and alters their behavior, leading to conflicts with humans.

Improper disposal of kitchen waste by both local residents and hoteliers near bear habitats has provided easy access to food, leading to frequent interactions between bears and humans.

Restricted Distribution and Declining Population:

The restricted distribution of the Himalayan brown bear in the alpine meadows of the Himalayas has made it challenging for researchers to gather comprehensive data on the species.

Habitat destruction caused by factors like habitat encroachment, tourism, and grazing pressure has contributed to the declining population of bears.

With only an estimated 500-750 bears left in India, urgent conservation efforts are required to ensure their survival.

Future Threats and Conservation Recommendations:

The Himalayan brown bear's future remains bleak, as a study predicts a decline of about 73% of their habitat by 2050 in the western Himalayas.

Climate change poses a significant risk, necessitating preemptive spatial planning of protected areas to ensure the long-term viability of the species.

Conservation efforts should focus on habitat preservation, creating biological corridors, and promoting responsible waste management to minimize human-bear conflicts.

Should Strengthen the legal protection and enforcement by implementing the Wildlife (Protection) Act of 2022 and CITES regulations.

India-USA relations

Derailments in Indian Railways

Context :-

The tragic train accident that occurred on June 2, 2023, at Bahanaga Bazar railway station in Odisha's Balasore district, has highlighted the urgent need for effective safety measures to prevent such devastating incidents.

The recent incident has brought attention to the Kavach initiative, which aims to enhance railway safety in India. However, the Kavach system has not been implemented on the Odisha route.

Comptroller and Auditor General of India (CAG)'s 2022 report on '[Derailments in Indian Railways](#)' flagged [multiple shortcomings](#) on the causes of train accidents in the country.

Major Highlights of the Report

About:

The CAG report reveals that nearly 75% of the consequential train accidents between 2017-18 and 2020-21 were caused by derailments.

Derailments: The Leading Cause of Train Accidents

Out of 217 consequential train accidents, 163 (around 75%) were caused by derailments.

Other causes of train accidents include fire in trains (20 accidents), accidents at unmanned level-crossings (13 accidents), collisions (11 accidents), accidents at manned level crossings (8 accidents), and miscellaneous incidents (2 accidents).

Classification of Train Accidents:

The Railway Board classifies train accidents into two categories: Consequential Train Accidents and Other Train Accidents.

Consequential Train Accidents include accidents with significant repercussions, such as loss of life, human injury, property damage, and interruption to railway traffic.

Other Train Accidents encompass all accidents that do not fall under the consequential category.

Factors Responsible for Derailments:

Analysis of inquiry reports revealed 23 factors contributing to derailments in 16 Zonal Railways and 32 divisions.

The major factor responsible for derailments was

related to maintenance of track (167 cases), followed by deviation of track parameters beyond permissible limits (149 cases) and bad driving/overspeeding (144 cases).

Rashtriya Rail Sanraksha Kosh (RRSK):

The CAG also analysed the performance of RRSK, established in 2017-18 to strengthen safety measures on the rail network to prevent accidents with a corpus of Rs 1 lakh crore.

The audit found that while the Gross Budgetary Support of Rs 15,000 crore had been contributed, the Railways' internal resources fell short of the target for funding the remaining Rs 5,000 crore per year to RRSK.

This shortfall of funds from internal resources undermined the primary objective of creating RRSK to enhance safety in Railways.

Declining Allotment of Funds for Track Renewal:

The report highlighted a **decline in the allotment of funds for track renewal works**, from **Rs 9,607 crore** in 2018-19 to Rs 7,417 crore in 2019-20.

Furthermore, the allocated funds for track renewal works were not fully utilised.

Out of 1,127 derailments during 2017-21, 289 derailments (26%) were linked to track renewals.

Recommendations and Pending Projects:

The CAG report recommended strict adherence to scheduled timelines for conducting and finalising accident inquiries.

Indian Railway (IR) may develop a strong monitoring mechanism to ensure timely implementation of maintenance activities by adopting fully mechanised methods of track maintenance and improved technologies.

IR may prepare the '**Detailed Outcome Framework**' for each item of safety work as per the indicative outcomes to gauge whether the benefits derived out of the RRSK funds are in the conformity with the objectives behind the creation of the Fund

Note: Derailment refers to the situation when a train or any other rail vehicle goes off the tracks, resulting in a loss of stability and the inability to continue moving along its

intended path. It is a critical safety incident that can lead to significant damage, injuries, and even fatalities.

What is Kavach?

About:

Kavach is an indigenously developed Automatic Train Protection (ATP) system aimed at enhancing safety in train operations across the vast network of Indian Railways.

Eye on oil:

India took an advantage of oil being sold by Russia.

Organization of Petroleum Exporting Countries (OPEC):

GS Paper - 2

Important International Institutions

Organization of Petroleum Exporting Countries or OPEC is a **permanent, intergovernmental organization** that was created in the **Conference of Baghdad in 1960**. The creators included **Iran, Iraq, Kuwait, Saudi Arabia and Venezuela**.

These countries were later joined by

Qatar (1961)

Indonesia (1962)

Libya (1962)

United Arab Emirates (1967)

Algeria (1969)

Nigeria (1971)

Ecuador (1973)

Gabon (1975)

Angola (2007)

Equatorial Guinea (2017)

Congo (2018)

However, currently, the Organization has a total of 13 member countries only after Ecuador, Indonesia, Qatar and Gabon suspended it.

OPEC: Purpose-

OPEC is a permanent intergovernmental organization of 13 oil-exporting developing nations that coordinates and unifies the petroleum policies of its Member Countries.

The purpose of this organization is to manage the supply of the oil around the globe and to make efforts to set the price of the oil in the global market. This was done in order to avoid fluctuations that may affect the economies of both producers and purchasers.

As per the OPEC statute, "any country with a substantial net export of crude petroleum, which has fundamentally similar interests to those of Member Countries, may become a Full Member of the Organization, if accepted by a majority of three-fourths of Full Members, including the concurring votes of all Founder Members."

What is OPEC + or OPEC Plus?

The non-OPEC countries which export crude oil are termed as OPEC Plus countries. OPEC Plus countries include

Azerbaijan

Bahrain

Brunei

Kazakhstan

Malaysia

Mexico

Oman

Russia

South Sudan

Sudan

This means in short that the countries that export crude oil apart from OPEC countries are called OPEC +.

The OPEC and non-OPEC producers first formed the alliance at a historic meeting in Algiers in 2016

Deep faking technology

Deepfake Technology

What is Deepfake Technology?

About:

Deepfake technology is a method for manipulating videos, images, audios utilizing powerful computers and deep learning.

It is used to generate fake news and commit financial fraud among other wrong doings.

It overlays a digital composite over an already-existing video, picture, or audio; cybercriminals use Artificial Intelligence technology.

Origin of the Word:

The term deepfake originated in 2017, when an anonymous Reddit user called himself "Deepfakes."

This user manipulated Google's open-source, deep-learning technology to create and post pornographic videos.

Misuse:

Deepfake technology is now being used for nefarious purposes like scams and hoaxes, celebrity pornography, election manipulation, social engineering, automated disinformation attacks, identity theft and financial fraud etc.

Deepfake technology has been used to impersonate notable personalities like former U.S. Presidents Barack Obama and Donald Trump, India's Prime Minister Narendra Modi, etc.

What is Deep Synthesis?

Deep synthesis is defined as the use of technologies, including deep learning and augmented reality, to generate text, images, audio and video to create virtual scenes.

One of the most notorious applications of the technology is deepfakes, where synthetic media is used to swap the face or voice of one person for another.

Deepfakes are getting harder to detect with the advancement of technology

What are other Countries doing to Combat Deepfakes?

European Union:

The European Union has an updated [Code of Practice to stop the spread of disinformation through deepfakes](#).

The revised Code requires tech companies including [Google, Meta, and Twitter](#) to take measures in [countering deepfakes and fake accounts on their platforms](#).

They have [six months](#) to implement their measures once they have signed up to the Code.

If found non-compliant, these companies can face fines as much as [6% of their annual global turnover](#), according to the updated Code.

Introduced in 2018, the Code of Practice on Disinformation brought together for the first-time worldwide industry players to commit to counter disinformation

United States:

The U.S. introduced the bipartisan **Deepfake Task Force Act** to assist the Department of Homeland Security (DHS) to counter deepfake technology.

The measure directs the DHS to conduct an annual study of deepfakes assess the technology used, track its uses by foreign and domestic entities, and come up with available countermeasures to tackle the same.

California and Texas have passed laws that **criminalize the publishing and distributing of deepfake videos that intend to influence the outcome of an election**. The law in Virginia imposes criminal penalties on the distribution of nonconsensual deepfake pornography.

India:

In India, however, there are no legal rules against using deepfake technology.

However, **specific laws can be addressed for misusing the tech, which include Copyright Violation, Defamation and cyber felonies.**

PMI

Purchasing Manager's Index

What is the PMI?

It is a **survey-based measure** that asks the respondents about changes in their perception of key business variables as compared with the previous month. It is an index of the prevailing **direction of economic trends in the manufacturing and service sectors.**

The purpose of the PMI is to provide information about **current and future business conditions to company decision makers, analysts, and investors.**

It is calculated separately for the manufacturing and services sectors and then a composite index is also constructed.

The PMI is a number from **0 to 100**.

A print **above 50 means expansion**, while a score below that denotes contraction.

A reading at 50 indicates no change.

If the PMI of the previous month is higher than the PMI of the current month, it represents that the economy is contracting.

It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.

PMI is compiled by **IHS Markit** for more than 40 economies worldwide.

IHS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.

IHS Markit is part of S&P Global.

As the official data on industrial output, manufacturing and Gross Domestic Product (GDP) growth comes much later; PMI helps to make informed decisions at an earlier stage.

It is different from the Index of Industrial Production (IIP), which also **gauges the level of activity in the economy**.

IIP covers the broader industrial sector compared to PMI.

However, PMI is more dynamic compared to a standard industrial production index

What is the Significance of PMI?

Provides a Reliable Expectation of Economy:

The PMI is becoming one of the most tracked indicators of business activity across the world.

It provides a reliable expectation of how an economy is doing as a whole and manufacturing in particular.

Indicator of Economic Activity:

It is a good gauge of boom-and-bust cycles in the economy and closely watched by investors, business, traders and financial professionals besides economists.

PMI is also regarded as a leading indicator of economic activity since it is released at the beginning of every month.

It comes before the official data on industrial output, core sector manufacturing and GDP growth.

Helps in Decision Making:

The PMI is used by central banks to set interest rates

Meitei Community

Context :- Tensions erupted in several parts of Manipur recently after a solidarity march organised by a tribal students' union to oppose the demand for Scheduled Tribe (ST) status by a section of the majority Meitei community in the state.

About Meitei Community:

The Meitei people, also known as the [Manipuri people](#), are the predominant ethnic group of Manipur State.

They speak the [Meitei language \(officially called Manipuri\)](#), one of the [22 official languages of India](#) and the sole official language of Manipur State.

Distribution:

The Meiteis primarily [settled in the Imphal Valley region](#) in modern-day Manipur, though a sizable population has settled in the other Indian states of [Assam, Tripura, Nagaland, Meghalaya, and Mizoram](#).

There is also a notable presence of Meitei in the neighbouring countries of [Myanmar](#) and [Bangladesh](#).

The Meitei ethnic group represents about [53%](#) of Manipur's population.

Clans: They are divided into clans, the members of which [do not intermarry](#).

Economy: [Rice cultivation](#) on irrigated fields is the basis of their economy.

Religion: A majority follow Hinduism, while more than 8% are Muslims.

What is Yaoshang Festival?

It is celebrated by the Meitei people at the same time as Holi and is known as '[Manipur's version of Holi](#)'.

The five-day-long celebration begins with the burning of '[yaoshang](#)'(a small thatch hut/[straw hut](#)), which is constructed with bamboo and straws on the first day.

The highlight of the festival is the [Thabaln Chongba](#), a traditional Manipuri folk dance where boys and girls hold hands and sing and dance in a circle.

The festival marks the rejuvenation of the spirit of life and commemorates the birthday of [Chaitanya Mahaprabhu](#).

Kukis

Context :- All 10 Kuki MLAs in Manipur recently urged the Centre to create a separate administration in the wake of the violent clashes between their community and the Meiteis.

About Kukis:

They are an ethnic group comprising multiple tribes who originally inhabited the North-Eastern states of India, parts of [Myanmar](#), and [Bangladesh](#).

Kuki is not a term coined by the ethnic group itself but is used generically for tribes associated with it under colonial rule.

They are present in all **Northeast Indian states except Arunachal Pradesh.**

Around **fifty tribes** of Kuki peoples in India are recognised as scheduled tribes.

The **Chin people of Myanmar and the Mizo people of Mizoram** are kindred tribes of the Kukis and are collectively known as the **Zo people.**

In Manipur, Kuki tribes comprise around 30% of the population and mainly reside in the hills.

History: The first resistance to British hegemony by the Kuki people was the **Kuki Rebellion of 1917-19**, after which their territory was subjugated by the British and divided between the administrations of British India and British Burma. Up until their defeat in 1919, the Kukis had been an independent people ruled by their chieftains.

Religion and Culture:

Normally they **do not arrange any marriage** alliance outside their community.

Traditionally they were not Christian but **animist and worshipped different deities and spirits.**

But for the last 90 years, the majority of them have embraced Christianity as their religion.

They have their own customary laws and village council. **LAL is a term used to denote village chief.**

The village chief generally looks up all sorts of social and religious disputes, Including disputes related to marriage and divorce

What are Psychedelics?

About:

Psychedelics are a group of drugs that alter **perception, mood, and thought processing** while a person is still clearly **conscious**. Usually, the person's insight also remains unimpaired.

Psychedelics are **non-addictive and non-toxic**. Compared to illicit drugs, psychedelics cause **much less harm to the end user**.

The two most commonly used psychedelics are **d-lysergic acid diethylamide (LSD)** and **psilocybin**.

Less common ones include mescaline, found in the North American peyote cactus (*Lophophora williamsii*), and N,N-dimethyltryptamine, the principal component of the South American ceremonial sacrament ayahuasca.

Impact on Body after Consumption:

Users of psychedelic substances report changes in perception, somatic experience, mood, thought processing, and entheogenic experiences:

Perceptual distortions most commonly include the visual domain

Issues:

An overdose requires cardiac monitoring and supportive management in a low-stimulus and reassuring environment.

Synthetic psychedelics (such as 25I-NBOMe) have been associated with acute cardiac, central nervous system, and limb ischaemia, as well as **serotonin syndrome**.

There have also been reports of death attributed directly to synthetic psychedelic use.

What is Marijuana?

About:

Marijuana is a **psychoactive drug** from the Cannabis plant used for medical, recreational & religious purposes.

Cannabis can be used for smoking, vaporization, within food, or as an extract.

It creates mental and physical effects, such as a "**high**" or "**stoned**" **feeling**, a general change in perception, and an increase in appetite.

Short term side effects may include a **decrease in short-term memory**, dry mouth, impaired motor skills, red eyes, and feelings of paranoia or anxiety.

Long term side effects may include addiction, decreased mental ability and behavioural problems in children whose mothers' used cannabis during pregnancy.

Manual Scavenging

Context :-

Recently, the **Ministry of Social Justice and Empowerment (MoSJ&E)** told Lok Sabha that no person had died from Manual Scavenging in the last three years (2019 to 2022).

What is Manual Scavenging?

Manual scavenging is defined as "**the removal of human excrement from public streets and dry latrines, cleaning septic tanks, gutters and sewers**".

India banned the practice under the **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR)**.

The Act bans the use of any individual manually cleaning, carrying, disposing of or otherwise handling in any manner human excreta till its disposal.

The Act recognizes manual scavenging as a "**dehumanizing practice**".

What are the Reasons for the Prevalence of Manual Scavenging?

Issues due to Outsourcing:

Many times, local bodies outsource sewer cleaning tasks to **private contractors**. However, many of them fly-by-night operators, do not maintain proper rolls of sanitation workers.

In case after case of workers being **asphyxiated to death**, these contractors have denied any association with the deceased.

Social Issue:

The practice is driven by **caste, class and income divides**.

It is linked to India's caste system where so-called lower castes are expected to perform this job.

In 1993, **India banned the employment of people as manual scavengers** (The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993), however, the **stigma and discrimination associated with it still linger on**.

This makes it difficult for liberated manual scavengers to secure alternative livelihoods.

What are the Steps taken to tackle the Menace of Manual Scavenging?

The Prohibition of Employment as Manual Scavengers and their Rehabilitation (Amendment) Bill, 2020:

It proposes to **completely mechanise sewer cleaning**, introduce ways for 'on-site' protection and provide compensation to manual scavengers in case of sewer deaths.

It will be an amendment to The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.

It is still awaiting cabinet approval.

The Building and Maintenance of Insanitary Latrines Act of 2013:

It outlaws' construction or maintenance of unsanitary toilets, and the hiring of anybody for their manual scavenging, as well as of hazardous cleaning of sewers and septic tanks.

It also provides a constitutional responsibility to provide alternative jobs and other assistance to manual scavenging communities, as reparation for historical injustice and indignity.

Scheduled Castes & Scheduled Tribes (Prevention Of Atrocities) Act, 1989:

In 1989, the Prevention of Atrocities Act became an integrated guard for sanitation workers, more than 90% people employed as manual scavengers belonged to the Scheduled Caste. This became an important landmark to free manual scavengers from designated traditional occupations.

Safaimitra Suraksha Challenge:

It was launched by the Ministry of Housing and Urban Affairs on World Toilet Day (19th November) in 2020.

The Government launched this "challenge" for all states to make sewer-cleaning mechanised by April 2021 — if any human needs to enter a sewer line in case of unavoidable emergency, proper gear and oxygen tanks, etc., are to be provided.

Swachhta Abhiyan App:

It has been developed to identify and geotag the data of insanitary latrines and manual scavengers so that the insanitary latrines can be replaced with sanitary latrines and rehabilitate all the manual scavengers to provide dignity of life to them.

National Action Plan for Mechanised Sanitation Ecosystem (NAMASTE):

The NAMASTE scheme is being undertaken jointly by the Ministry of Housing and Urban Affairs and the MoSJ&E and aims to eradicate unsafe sewer and septic tank cleaning practices.

SC Judgment: In 2014, a Supreme Court order made it mandatory for the government to identify all those who died in sewage work since 1993 and provide Rs. 10 lakh each as compensation to their families.

UPSC 2016

Q. 'Rashtriya Garima Abhiyaan' is a national campaign to (2016)

- (a) rehabilitate the homeless and destitute persons and provide them with suitable sources of livelihood
- (b) release the sex workers from their practice and provide them with alternative sources of livelihood
- (c) eradicate the practice of manual scavenging and rehabilitate the manual scavengers
- (d) release the bonded labourers from their bondage and rehabilitate them

Ans: (c)

Exp:

Rashtriya Garima Abhiyaan is a national campaign for dignity and eradication of manual scavenging launched by Jan Sahas in 2001.

Therefore, option (c) is the correct answer

About:

Amarnath cave is considered to be one of the holiest shrines in Hinduism.

Location: The cave is situated at an altitude of 3,888 m about 141 km from Srinagar in Jammu and Kashmir.

Shiva Linga: Inside the Amarnath cave, a stalagmite is formed due to freezing of water drops that fall from the roof of the cave on to the floor and grows up vertically from the cave floor. It is considered to be a Shiva Linga by Hindus.

Religious Significance: According to Hindu religious beliefs –

This is the place where Shiva explained the secret of life and eternity to his divine consort, Parvati.

Amarnath yatra: The cave can be reached only on foot or by pony, travelling 46 km from Pahalgam or 16 km from Baltal along a steep, winding mountain trail

Hypersonic Technology

GS Paper - 3

Defence Technology

Why in News

Recently, it has been reported that China tested a nuclear-capable hypersonic glide vehicle that circled the globe before speeding towards its target.

Several countries, including the US, Russia and China, are developing hypersonic missiles which travel at a speed five times that of sound.

Though slower than ballistic missiles, they are harder to intercept and can be manoeuvred.

Implications for India:

Hypersonic technology developments, in the backdrop of growing US-China rivalry and a year-long standoff with Indian forces in eastern Ladakh, is certainly a threat for India's space assets along with the surface assets.

Hypersonic Speed and Technology:

About:

Hypersonic speeds are 5 or more times the Mach or speed of sound.

Mach Number: It describes an aircraft's speed compared with the speed of sound in air, with Mach 1 equating to the speed of sound i.e. 343 metre per second.

Technology Used: Most hypersonic vehicles primarily use the **scramjet technology**, which is a type of **Air Breathing propulsion System**.

This is extremely complex technology, which also needs to be able to handle high temperatures, making the hypersonic systems extremely costly.

Development of Hypersonic Technology in India:

India, too, is working on hypersonic technologies.

As far as space assets are concerned, India has already proved its capabilities through the test of **ASAT under Mission Shakti**.

Hypersonic technology has been developed and tested by both DRDO and ISRO.

Recently, DRDO has successfully flight-tested the **Hypersonic Technology Demonstrator Vehicle (HSTDV)**, with a capability to travel at 6 times the speed of sound.

Also, a **Hypersonic Wind Tunnel (HWT) test facility** of the DRDO was inaugurated in Hyderabad. It is a pressure vacuum-driven, enclosed free jet facility that simulates Mach 5 to 12.

Air Breathing Propulsion System

About: These systems **use atmospheric oxygen**, which is available up to about 50 km of earth's surface to burn the fuel stored on-board thereby making the system much lighter, more efficient and cost effective.

Examples of Air Breathing Propulsion System include the Ramjet, Scramjet, Dual Mode Ramjet (DMRJ).

Ramjet:

A ramjet is a form of air breathing jet engine that uses the vehicle's forward motion to compress incoming air for combustion without an axial compressor.

Fuel is injected in the combustion chamber where it mixes with the hot compressed air and ignites.

Ramjets cannot produce thrust at zero airspeed; they cannot move an aircraft from a standstill.

A ramjet-powered vehicle, therefore, requires an assisted take-off, like a rocket assist, to accelerate it to a speed where it begins to produce thrust.

The ramjet works best at supersonic speeds and as the speed enters the hypersonic range, its efficiency starts to drop.

Scramjet:

A scramjet engine is an improvement over the ramjet engine as it operates at hypersonic speeds and allows supersonic combustion, which gives it its name — supersonic combustion ramjet, or scramjet.

The scramjet is composed of three basic components:

A converging inlet where incoming air is compressed,

A combustor where gaseous fuel is burned with atmospheric oxygen to produce heat,

A diverging nozzle where the heated air is accelerated to produce thrust. The exhaust gases are accelerated to hypersonic speeds using a divergent nozzle.

The speed at which the vehicle moves through the atmosphere causes the air to compress within the inlet. As such, no moving parts are needed in a scramjet, which reduces the weight and the number of failure points in the engine.

India and Generative AI

What Exactly is Generative AI?

Generative AI is a type of AI system that can **create new content or data that resembles human-made content, such as text, images, music, code, etc.** It works by using neural networks to **learn from large amounts of data and then generate outputs based on the patterns and rules it has learned.**

Benefits of Generative AI

Content Creation: Generative AI enables the automated creation of various types of content, such as text, images, videos, music, and more. This can significantly speed up the content generation process for industries like advertising, entertainment, and marketing.

Personalization: Generative AI can be used to **create personalized experiences for users.** By analyzing user preferences and behaviour, generative AI systems can **generate tailored recommendations, product suggestions, and customized content, enhancing customer satisfaction and engagement.**

Creative Assistance: Generative AI tools can assist and inspire creative professionals in their work. Artists, designers, and writers can use generative AI to generate ideas, explore new possibilities, and overcome creative blocks. It can act as a collaborator, offering fresh perspectives and aiding in the creative process.

Simulation and Training: Generative AI can be used to simulate realistic scenarios for training purposes. For example, in industries like autonomous vehicles or robotics, generative AI can create virtual environments to train algorithms and test systems without the need for physical resources or risking safety.

Problem Solving: Generative AI can be applied to **problem-solving tasks**, such as generating new drug compounds, optimizing supply chain logistics, or **creating efficient**

designs. By exploring vast solution spaces, generative AI algorithms can propose novel solutions and accelerate the discovery process.

Virtual Characters and Agents: Generative AI can bring virtual characters and agents to life. By imbuing them with generative capabilities, they can exhibit natural language understanding, interact with users, and respond dynamically to different situations. This has applications in **virtual assistants, chatbots, gaming, virtual reality, and more.**

Threats from Generative AI

Hallucinations: These are the errors that AI models can make because they are not human and rely on data and training to provide answers. Sometimes, generative AI models can produce outputs that are nonsensical, inaccurate, or misleading.

Deepfakes: These are the synthetic media that generative AI models can create by manipulating or combining existing images, videos, or audio. Deepfakes can be used for malicious purposes such as spreading disinformation, impersonating people, or blackmailing.

Data Privacy: Generative AI models require large amounts of data to learn and generate outputs. However, this data may contain sensitive or personal information that can be compromised or misused by third parties. Generative AI models may also collect user data without their consent or knowledge.

Cybersecurity: Generative AI models can be used by hackers to create new and complex types of malwares, phishing schemes, or other cyberattacks that can evade conventional security measures. Such attacks can have serious consequences such as data breaches, financial losses, or reputational damage.

Copyright issues: Generative AI models can create content that resembles or copies existing human-made content, such as text, music, or art. This can raise ethical and legal questions about the ownership, attribution, and rights of the original and generated content.

How can India Harness the Benefits of Generative AI?

Healthcare: Generative AI can help diagnose and treat diseases more accurately by analyzing medical images and data. It can also help predict patient outcomes and take preventive measures.

Education: Generative AI can help create personalized learning content and assessments for students based on their abilities and interests. It can also help teachers with grading, feedback, and curriculum design.

Agriculture: Generative AI can help optimize crop yield and quality by generating recommendations for irrigation, fertilization, pest control, and harvesting based on weather, soil, and plant data.

Manufacturing: Generative AI can help design and produce new products and services that meet customer needs and preferences by analyzing market trends and consumer behavior. It can also help improve efficiency and quality control in production processes.

Entertainment: Generative AI can help create new forms of art, music, literature, and games that can entertain and inspire people. It can also help personalize content recommendations and advertisements based on user preferences.

What should India do to Overcome Challenges posed by Generative AI?

Developing a clear and comprehensive regulatory framework that defines the purpose, scope, and principles of generative AI regulation. The framework should balance the protection of individuals from potential harms with the promotion of innovation and economic growth.

Building an accurate and fair liability framework that assigns responsibility and accountability for the actions and outcomes of generative AI systems. The framework should consider the roles and obligations of different stakeholders, such as developers, providers, users, and regulators.

Incorporating essential regulatory facets such as transparency, accountability, privacy, security, ethics, and human oversight. These facets should ensure that generative AI systems are trustworthy, reliable, and respectful of human rights and values.

Investing in research and development of generative AI technologies that can address India's specific needs and challenges. India should leverage its strengths in data science, engineering, and entrepreneurship to create innovative solutions for various sectors and domains.

Fostering collaboration and cooperation among different stakeholders, such as government, industry, academia, civil society, and international partners. India should engage in dialogue and exchange of best practices with other countries and regions that are leading in generative AI development and regulation.

Daily Mains Question

Q- Discuss the potential benefits and challenges of generative AI for India's development and security. Suggest some measures that India should take to harness the opportunities and mitigate the risks of generative AI. (250 Words)

प्र- भारत के विकास और सुरक्षा के लिए जनरेटिव एआई के संभावित लाभों और चुनौतियों पर चर्चा करें। कुछ उपाय सुझाएं जो भारत को अवसरों का दोहन करने और जनरेटिव एआई के जोखिमों को कम करने के लिए लेने चाहिए। (250 शब्द)

KOSOVO SERBIA CONFLICT

Kosovo-Serbia Conflict

Context :- Serbian protesters and NATO (North Atlantic Treaty Organization) peacekeepers recently clashed in Kosovo, leading to more than 60 injuries. It is the most serious violence seen in the region in over a decade.

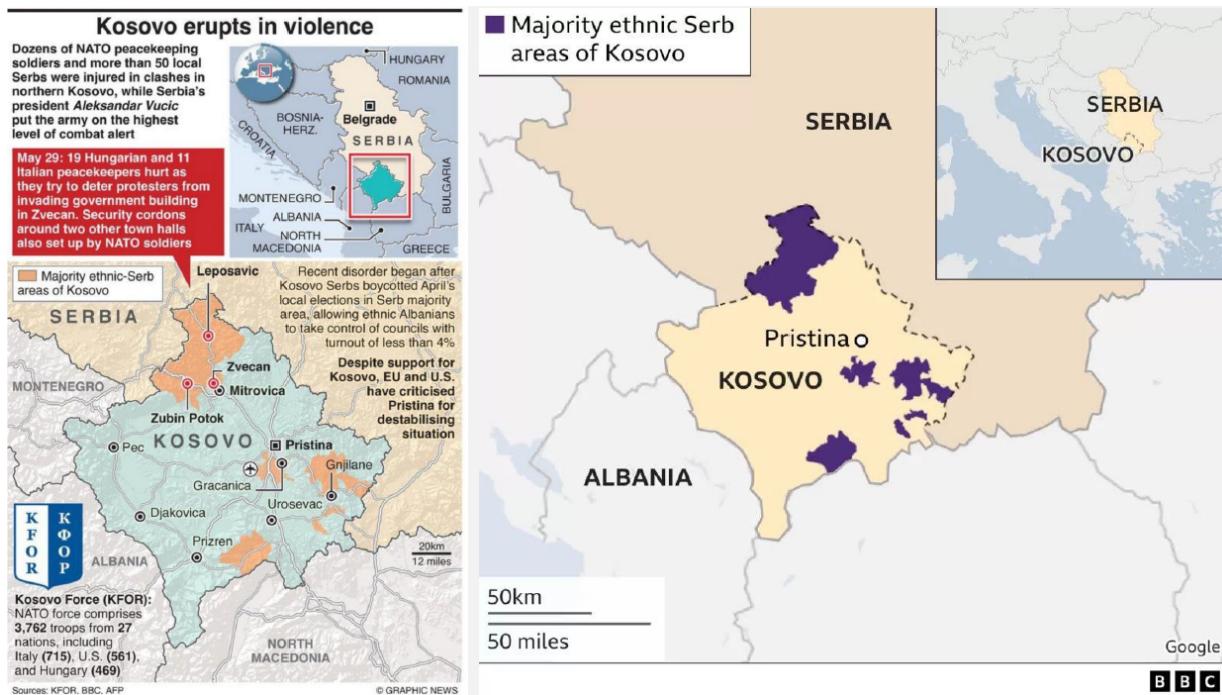
Cause for Current Tension

Northern Kosovo experiences frequent tensions stemming from the larger ethnic and political divide between ethnic Serbs and Albanians.

Ethnic Serbs, who form a majority in northern Kosovo, attempted to block Albanian mayors from taking charge in local councils.

Serbs boycotted local elections in April 2023, resulting in a low voter turnout of less than 3.5%. The election results were rejected by Serbs as illegitimate.

Kosovo-Serbia Conflict About





Geography:

Serbia: Serbia is a landlocked country in eastern Europe that shares borders with Hungary, Romania, and Bulgaria.

Kosovo: Kosovo is a small landlocked region that lies to Serbia's southwest, sharing borders with North Macedonia, Albania, and Montenegro. Many Serbs consider Kosovo the birthplace of their nation.



Kosovo declared independence from Serbia in 2008, but Serbia does not recognize Kosovo's statehood.

Ethnic Background:

Kosovo is a region where Serbs and Albanians, representing different ethnicities and religious backgrounds, have been living for centuries.

1.8 million people living in Kosovo, **92% are Albanian and only 6% Serbian**. The rest are **Bosniaks, Gorans, Turks and Roma**.

Serbs are primarily **Eastern Orthodox Christians**, while Albanians in Kosovo are predominantly Muslim. Other minority groups include Bosnians and Turks. Serbs form the majority in Serbia, while Albanians are the majority in Kosovo.

Battle Of Kososvo:

Serbian nationalists view the **1389 Battle of Kosovo** between the Serbian prince Lazar Hrebeljanovic and the Ottoman Sultan Murad Hudavendigar as a defining moment in their national struggle.

On the other hand, Kosovo's majority ethnic Albanians view Kosovo as belonging to them and accuse Serbia of occupation and repression.

Disintegration of Yugoslavia:

From 1945 after the end of World War II to 1992, the area in the Balkans comprising present-day Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia, was one country, officially known as the Socialist Federal Republic of Yugoslavia (SFRY) with Belgrade as its capital. Serbia included autonomous provinces of Kosovo and Vojvodina.

Following the collapse of the Soviet Union, **Yugoslavia disintegrated**, with each republic becoming an independent country.

Slovenia was the first to secede in 1991.

The late 1980s and early 1990s saw the weakening of the central government in Yugoslavia, accompanied by resurgent nationalism.

Political leaders exploited nationalist rhetoric, eroding the common Yugoslav identity and fueling fear and mistrust among ethnic groups.

In 1998, ethnic Albanian rebels formed the **Kosovo Liberation Army (KLA)** to challenge Serbian rule.

Intervention of NATO:

NATO intervened in 1999 after Serbia's brutal response, leading to a 78-day air campaign against Kosovo and Serbia.

Serbia agreed to withdraw its forces from Kosovo, resulting in the return of Albanian refugees and the displacement of many Serbs who feared reprisals.

In June 1999, Kosovo came under international administration, with its final status remaining unresolved. Several Serbian leaders, including President Milošević, were indicted for war crimes by the UN's tribunal.

What is the Current Status of Kosovo?

While Kosovo declared independence in 2008, Serbia still considers it to be an integral part of Serbian territory.

Countries such as India, China, and Russia do not recognise Kosovo as a separate country, while the US, the majority of EU countries, Japan and Australia do so.

A total of 99 out of 193 United Nations (UN) countries now recognize Kosovo's independence.

India's Stand on the Status of Kosovo

India claims that Kosovo does not fulfill the three principles required for recognition: **a defined territory, a duly constituted government accepted by the people, and effective control over an area of governance.**

India has opposed Kosovo's membership in international bodies such as UNESCO, Apostille Convention, Convention for the Pacific Settlement of International Disputes, and Egmont Group of Financial Intelligence Units.

India's non-recognition of Kosovo is based on its support for the sovereignty and territorial integrity of Serbia, with whom it has a long-standing relationship.

Astronomers have recently discovered a 'quasi-moon' called '2023 FW13' that orbits the Earth but is actually gravitationally bound by the Sun.

About 2023 FW13:

- It is **an asteroid** which has been designated as a **quasi-satellite or a quasimoon**.
- It is among the few known quasi-moons or satellites that we know of in our solar system.
- It was identified by experts utilizing the **Pan-STARRS telescope** situated atop **Hawaii's Haleakala volcano**.
- It has been in Earth's vicinity since 100 BC and will keep circling our planet for at least another 1,500 years, until AD 3700.

•Features:

- The newfound asteroid 2023 FW13 circles the sun in sync with Earth.
- According to preliminary estimates, its diameter is from 10 to 20 meters.
- While **not gravitationally bound to Earth in any discernible way (like our Moon)**, the asteroid's bizarre orbit makes it **circle our planet occasionally**, earning it the name of a quasi-satellite or quasi-moon.
- At the closest point in its **slightly elliptical orbit around Earth**, the moon comes within about 223,693 miles (360,000 km) of our planet.

What are quasi-moons?

- Quasi-moons are also known as 'quasi-satellites' because they appear to orbit our planet in the same way that our natural satellite, the Moon.
- It is a space rock that circles the Earth, but is gravitationally bound by the sun.

BARENTS SEA

Geologists have recently discovered a never-before-seen volcano at the bottom of the Barents Sea off the coast of Norway, which is erupting with mud, fluids, and gas from the planet's interior.

About Barents Sea:

•Location:

- It is a marginal sea of the Arctic Ocean.
 - It is located along the northern coasts of Norway and Russia and divided between Norwegian and Russian territorial waters.
- The current name of the sea is after the historical Dutch navigator [Willem Barentsz](#).





•Boundaries:

- It is bounded by the Svalbard archipelago in the northwest, Franz Josef Land islands in the northeast, the Novaya Zemlya archipelago in the east, the Norwegian Sea and the Greenland Sea in the west, and by the Kola Peninsula in the south.
- It is separated from the Kara Sea by the Kara Strait and the Novaya Zemlya archipelago.
- The White Sea and the Pechora Sea are two parts of the Barents Sea.

- The White Sea is a southern arm of the Barents Sea, which separates the Kola Peninsula from the Russian mainland.
 - The Pechora Sea is situated in the southeastern part of the Barents Sea.
-

IAEA

- An International Atomic Energy Agency (IAEA) team recently arrived in Tokyo for a final review before Japan begins releasing massive amounts of treated radioactive water into the sea from the wrecked Fukushima nuclear plant.

About International Atomic Energy Agency (IAEA):

- It is widely known as the world's "Atoms for Peace and Development" organization within the United Nations family.

•Mandate:

- It is the world's central intergovernmental forum for scientific and technical co-operation in the nuclear field. It works for the safe, secure and peaceful uses of nuclear science and technology.

•History:

- Though established as an autonomous organisation, independently of the United Nations through its own international treaty, the IAEA Statute, the IAEA reports to both the United Nations General Assembly and Security Council.

•Headquarters:

- Vienna, Austria.

•Functions:

- The Agency works with its Member States and multiple partners worldwide to promote the safe, secure and peaceful use of nuclear technologies.
- In particular, the IAEA implements comprehensive safeguards agreements mandated by the Nuclear Non-Proliferation Treaty (NPT),

which serve as a first line of defense against nuclear weapons proliferation.

- IAEA assists its Member States and promotes the exchange of scientific and technical information between them.
- IAEA enhances national, regional, and international capacities to respond to nuclear and radiological incidents, which is essential to minimizing their impact.

What is the Nuclear Non-Proliferation Treaty (NPT)?

- It was an agreement signed in 1968 by several of the major nuclear and non-nuclear powers that pledged their cooperation in stemming the spread of nuclear technology.
- With 191 States parties, it is the most widely adhered to treaty in the field of nuclear non-proliferation, peaceful uses of nuclear energy and nuclear disarmament.
- Under the NPT, non-nuclear-weapon States parties have committed themselves not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices while nuclear-weapon States parties have committed not to in any way assist, encourage or induce any non-nuclear weapon State party to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices.
- Nuclear-weapon States parties under the Treaty are defined as those that manufactured and exploded a nuclear weapon or other nuclear explosive device before 1 January 1967.
- There are five nuclear-weapon States parties to the Treaty.
- Only Israel, India, and Pakistan have never been signatories of the Treaty, and North Korea withdrew from the Treaty in 2003.

Global Greenhouse Gas Watch (GGGW)

The World Meteorological Congress has approved a new greenhouse gas (GHG) monitoring initiative called Global Greenhouse Gas Watch (GGGW).

About Global Greenhouse Gas Watch (GGGW):

- It is a new greenhouse gas (GHG) monitoring initiative of the World Meteorological Organisation (WMO).
- GGGW will fill critical information gaps, providing an integrated, operational framework under all space-based and surface-based observing systems under one roof, along with modelling and data assimilation capabilities.

- It will build on WMO's experience in coordinating international collaboration in predicting the weather and analysing climate on longstanding activities in greenhouse gas monitoring and research under the guidance of the Global Atmosphere Watch, established in 1989.

- GGGW predicts a top-down approach to the flux evaluation, which builds on existing capabilities in surface- and spacebased observations and modelling, ensuring the timely exchange of all observations and data.

- The GGGW will consist of four main components:

- Comprehensive, sustained, global surface- and satellite-based observations of CO₂, methane, and nitrous oxide concentrations, partial column amounts, total column amounts, vertical profiles, and fluxes supporting oceanic, meteorological, and terrestrial variables, internationally exchanged as rapidly as possible.

Prior estimates of the GHG emissions based on the activity data and process-based models.

- Global high-resolution Earth system models representing GHG cycles.

- Data assimilation systems combining the observations with model calculations to generate products of higher accuracy.

Key facts about World Meteorological Organisation (WMO):

- It is a specialized agency of the United Nations (UN).

- It is the UN system's authoritative voice on the state and behavior of the Earth's atmosphere, its interaction with the oceans, the climate it produces, and the resulting distribution of water resources.

• It originated from the International Meteorological Organization (IMO), which was founded in 1873.

- Established in 1950, WMO became the specialized agency of the UN for meteorology(weather and climate), operational hydrology and related geophysical sciences.

- Headquarters:

- Geneva, Switzerland.

- Currently it has a membership of 187 countries.

- Governance Structure:

- Its supreme body is the World Meteorological Congress,

which consists of representatives of all members. It meets at least every four years to set general policy and adopt regulations. • A 36-member Executive Council meets annually and implements policy

Current affairs

Kanger Valley national park

A rare Indian mouse deer or spotted Chevrotain was recently spotted in the Kanger Valley National Park in Chhattisgarh.

About Kanger Valley National Park:

- Location: It is located in Jagdalpur in Bastar district of Chhattisgarh state.

The National Park derives its name from the Kanger River, which flows centrally from the Northwest to the Southeast direction.

- It got the status of a national park in the year 1982.

- Topography:It is noted for its highly heterogeneous land formations ranging from low flat and gentle areas to steep slopes, plateaus, valleys, and stream courses.

- It is home to three exceptional caves – famous for their amazing geological structures of Kutumbasar, Kailash and Dandak- Stalagmites and Stalactites.

- National Park is known for the presence of underground limestone caves with dripstone and floston. The stalagmites and stalactite formation is still increasing.

- Tirathgarh Waterfall is located in Kanger Valley National Park.

- Vegetation:**

- It is distinguished blend of mixed moist deciduous type of forests with the predominance of Sal, teak and bamboo.

- Fauna:**

- Major wild animals include tigers, mouse deer, leopards, wildcat, sambar, chital, barking deer, langurs, jackals, rhesus macaque, flying squirrel etc.

- The areal fauna at the park consists of common hill myna, red jungle fowl, spotted owlet, racket-tailed drongos, parrots etc.

[Close Window](#)

National Parks



Key facts about rare Indian Mouse Deer or Spotted Chevrotain:

- It is the smallest deer in India and is highly nocturnal.

- Scientific Name:

- *Moschiola indica*

- **Distribution:**

- It is endemic to the Indian subcontinent.
- It is mainly found in peninsular India with some old records from Nepal.
- Sri Lanka has a separate species called spotted chevrotain (*Moschiola meminna*).
- Within India, it is commonly encountered in a number of forest areas along the Western Ghats, in the Eastern Ghats up to Orissa, and in the forests of central India.

- **Features:**

- It is small, 25-30 cm at shoulder height, and weighs from two to four kg.
- A unique feature of this group is that instead of four-chambered stomach like in other ruminants, they have a three-chambered stomach.
- It forages on forest floor for fruits, roots, leaves and herbs.
- It has occasionally been observed eating insects, crustaceans and even small mammals.

- **Conservation Status:**

- IUCN: Least Concern
-

Purana Quila

A recent round of excavations at the site of Delhi's Purana Qila or Old Fort has uncovered evidence of the continuous history of the city since pre-Mauryan era..

About Purana Qila:

•Location:

- It is located on the South Eastern part of the present city of New Delhi.
- It is one of the oldest forts in Delhi and built on the banks of river Yamuna.
- The present citadel at Purana Qila started its construction in the reign of Humayun and was completed by Sher Shah Suri ('The Lion King').

•Architecture:

- is rectangular in shape and is spread over an area of 1.5 kilometers.
 - Another amazing feature of the Purana Qila are the three gates that are a display of a happy blend of Hindu and Muslim styles of architecture. –Bara Darwaza or the Big Gate facing west, the Humayun Gate facing south, and the Talaqqi Gate, which is often referred to as the forbidden gate.
 - All of the gates are double-storeyed and comprise of huge semi-circular bastions flanking either of their sides.
 - These bastions are equal in frequency, except for in the westward wall, where they are built at a distance of 73 meters from each other.
 - The eastern and western walls of the Qila are the tallest, which were specifically designed for safeguarding the Kings residing within the four walls.
 - All the walls surrounding the Qila are 0.33 meters thick and supported by bastions.
-

Gongadi

Recently, Telangana's woollen gongadi shawls have been refashioned into shoes for farmers by alumni of the National Institute of Design, Ahmedabad.

•What it is?

- Gongadi, (known also as Kambal) is the traditional woolen blanket woven by the indigenous Kuruma pastoralist communities from wool of the indigenous Deccani

sheep (known locally as Nalla gorrae) breed found in the Deccan Plateau region including the Indian state of Telangana.

- The famous blanket has once served the Indian Armed Forces to beat harsh winters at the borders.

•Features:

- The unique gongadi is not only the symbol of rich diverse traditional weaving culture of the Deccan region but also the pride and identity of the local indigenous pastoralist communities.
- The coarse woolen blanket is famous for its durability and versatility.
- The tough gongadi usually lasts for more than a decade and acquires this unique quality from the craft of hand weaving.
- One of the unique natures of gongadi is that it does not fade but grows darker in time.
- The indigenous Kuruma weavers say that gongadi is so strong that you can lift a fully grown bull off the ground with it.
- The traditional gongadi is produced organically, without using any dyes either natural or synthetic. Sizing of the strings is done using the paste of soaked and cooked tamarind seeds

SCO

Recently, the Ministry of External Affairs announced that India will host the annual summit of the Shanghai Cooperation Organisation (SCO) in the virtual format on July 4, 2023.

About SCO Summit, 2023:

- It will be held in the virtual format.
- All the SCO Member States, China, Russia, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan and Uzbekistan have been invited to attend the Summit.

- Iran, Belarus and Mongolia have been invited as Observer States.
- The theme of the Summit is 'Towards a SECURE SCO'. The SECURE acronym stands for Security, Economy and Trade, Connectivity, Unity, Respect for Sovereignty and Territorial Integrity and Environment
- India has set up new pillars of cooperation under its Chairmanship - Startups and Innovation, Traditional Medicine, Digital Inclusion, Youth Empowerment and Shared Buddhist Heritage.

About Shanghai Cooperation Organisation:

- The SCO was founded at a summit in Shanghai in 2001 by the presidents of Russia, China, the Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan.
 - India and Pakistan became its permanent members in 2017.
 - The SCO is an influential economic and security bloc and has emerged as one of the largest transregional international organisations.
 - SCO has two Permanent Bodies - (i) SCO Secretariat in Beijing (ii) Executive Committee of the Regional Anti-Terrorist Structure (RATS) in Tashkent.
 - The Regional Anti-Terrorist Structure serves to promote cooperation of member states against terrorism, separatism and extremism.
 - The official working languages: Chinese and Russian.
-

Salt Cavern Based Oil Reserves: SPR

Context :- Government-owned engineering consultancy firm Engineers India Ltd. (EIL) is studying the prospects and feasibility of developing Salt Cavern-Based Strategic oil Reserves in Rajasthan.

The study is in line with the government's objective of increasing the country's strategic oil storage capacity.

Salt Cavern-based Reserves

About:

Salt caverns are underground spaces formed by dissolving salt in water through a process called solution mining.

This method involves pumping water into areas with large salt deposits to dissolve the salt and create caverns. Once the brine (water with dissolved salt) is removed, these caverns can be used to store crude

Rock Based Cavern:

Excavated rock-based caverns for oil reserves are underground spaces created by manually excavating and removing rock materials to form large storage cavities.

Excavated rock caverns are constructed by drilling, blasting, and removing rock layers to create the desired storage space. The rock walls and ceilings of these caverns serve as the natural barriers for containing the stored oil.

Significance of Salt Based-Cavern Over Rock Based Cavern:

Salt cavern development is simpler, faster, and less expensive. Salt cavern-based oil storage facilities are naturally well-sealed and designed for efficient oil injection and extraction.

A report by MIT's Environmental Solutions Initiative suggests that storing oil in salt caverns is more favorable than other geological formations.

The salt lining the caverns has very low oil absorbency, creating a natural impermeable barrier against liquid and gaseous hydrocarbons. This characteristic makes salt caverns suitable for oil storage.

The United States' Strategic Petroleum Reserve (SPR), the largest emergency oil storage globally, relies exclusively on salt cavern-based facilities.

Potential of Salt Based Cavern:

Salt cavern-based storage, which is considered cheaper and less labour- and cost-intensive than rock caverns, could add a new, much-needed chapter to India's SPR story.

Rajasthan, with its abundant salt formations, is considered the most suitable location in India for developing salt cavern-based strategic storage facilities.

The presence of a refinery in Barmer and crude oil pipelines in Rajasthan makes the infrastructure conducive for building strategic oil reserves.

Challenges to Build a Salt Based Cavern for Oil Reserves

Indian companies have lacked the technical expertise required to construct salt cavern-based strategic storage facilities.

However, EIL has recently partnered with Germany, a company specializing in cavern storage and solution mining technology, to bridge this knowledge gap.

Identifying suitable sites for salt cavern-based storage facilities is crucial. While Rajasthan has abundant salt formations and favorable infrastructure such as crude pipelines and a new refinery in Barmer, specific sites within the region need to be assessed for their geological and technical suitability.

Estimating the project cost is a challenge until the technology and knowledge required for building salt cavern-based storage facilities are obtained. Factors such as site preparation, construction, and operational considerations need to be taken into account, along with other associated costs.

India's Strategic Petroleum Reserves Programme

About:

The construction of the Strategic Crude Oil Storage facilities in India is being managed by Indian Strategic Petroleum Reserves Limited (ISPRL).

ISPRL is a wholly owned subsidiary of Oil Industry Development Board (OIDB) under the Ministry of Petroleum & Natural Gas.

Strategic crude oil storages are at Mangalore (Karnataka), Visakhapatnam (Andhra Pradesh) and Padur (Karnataka) as per Phase I. They have fuel storage of total 5.33 MMT (Million Metric Tonnes).

Additional Reserves under PPP:

The government of India is planning to set up two more such caverns at Chandikhol (Odisha) and Udupi (Karnataka) as per phase II through Public-Private Partnership. This will give an additional 6.5 million tons of the oil reserves.

After the new facilities get functional, a total of 22 days (10+12) of oil consumption will be made available.

Capacity/Industrial Stock:

With the strategic facilities, Indian refiners also maintain crude oil storage (industrial stock) of 65 days.

Thus, approximately a total of 87 days (22 by strategic reserves + 65 by Indian refiners) of oil consumption will be made available in India after completion of Phase II of the SPR programme.

This will be very close to the 90 days mandate by the IEA.

India became an associate member of the IEA in 2017 and recently, IEA has invited India to become a full time member.

Need for Expanding the Capacity of SPR:

India, the world's third-largest consumer of crude, depends on imports for more than 85% of its requirement — and SPR can help ensure energy security and availability during global supply shocks and other emergencies.

India is in the process of expanding its SPR capacity by a cumulative 6.5 million tonnes at two locations — Chandikhol in Odisha (4 million tonnes) and Padur (2.5 million tonnes).

India currently has an SPR capacity of 5.33 million tonnes, or around 39 million barrels of crude, that can meet around 9.5 days of demand.

Minimum Support Price for Crops

GS Paper - 3

Agricultural Pricing

GS Paper - 2

Government Policies & Interventions

Minimum Support Price:

MSP is a “minimum price” for any crop that the government considers as remunerative for farmers and hence deserving of “support”.

It is also the price that government agencies pay whenever they procure the particular crop

MSP is given for the following crops:

The Commission for Agricultural Costs & Prices (CACP) recommends MSPs for 23 mandated crops and fair and remunerative price (FRP) for sugarcane.

CACP is an attached office of the Ministry of Agriculture and Farmers Welfare, Government of India.

It came into existence in January 1965.

It is an advisory body whose recommendations are not binding on the Government.

It is recommended by the Commission for Agricultural Costs and Prices (CACP) and approved by Cabinet Committee on Economic Affairs (CCEA).

The list of crops are as follows:

Cereals (7): Paddy, wheat, barley, jowar, bajra, maize and ragi,

Pulses (5): Gram, arhar/tur, moong, urad and lentil,

Oilseeds (7): Groundnut, rapeseed/mustard, soyabean, sunflower seed, sesamum, safflower seed and niger seed,

Commercial Crops (4): Raw cotton, Raw jute, Copra,
Sugarcane (Fair and remunerative price)

UPSC PYQ - 2015

Q. The Fair and Remunerative Price (FRP) of sugarcane is approved by the (2015)

- (a) Cabinet Committee on Economic Affairs
- (b) Commission for Agricultural Costs and Prices
- (c) Directorate of Marketing and Inspection, Ministry of Agriculture
- (d) Agricultural Produce Market Committee

Answer:-

Answer is A.

S. No	Cropping Season	Time Period	Crops	States
1.	Rabi	Sown: October-December Harvested: April-June	Wheat, barley, peas, gram, mustard etc.	Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh
2.	Kharif	Sown: June-July Harvested: September-October	Rice, maize, jowar, bajra, tur, moong, urad, cotton, jute, groundnut, soybean etc.	Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra
3.	Zaid	Sown and harvested: March-July (between Rabi and Kharif)	Seasonal fruits, vegetables, fodder crops etc.	Most of the northern and northwestern states

Kakhovka Dam: What happened to the dam in Ukraine?

Context :- Floodwaters were released throughout the conflict area after a massive Soviet-era dam - Kakhovka Dam - on the Dnipro River that separates Russian and Ukrainian forces in southern Ukraine was breached.

While Russian officials presented inconsistent versions, some claiming it was destroyed by Ukrainian shelling and others claiming it collapsed as a result of earlier damage, Ukraine claimed Russia had demolished it.

The Kakhovka Dam:

The dam [30 metres/98 feet tall and 3.2 km long] was built in 1956 on the Dnipro River as part of the Kakhovka hydroelectric power plant.

The reservoir ((18 km³ - a volume equal to the Great Salt Lake in the U.S. state of Utah) also supplies water to the -

Crimean Peninsula, which Russia claims to have annexed in 2014, and

Zaporizhzhia nuclear plant, which is also under Russian control.

What Happened to the Kakhovka Dam?

According to Ukraine, Russia was responsible.

Some Russian-installed officials blamed that Ukraine shelled the dam.

Other Russian-installed officials said no attack took place. The dam collapsed due to earlier damage and the pressure of the water.

What is the Impact?

On people: Evacuations of civilians began on both sides of the front line. 22,000 people living across 14 settlements in Ukraine's southern Kherson region are at risk of flooding.

On Crimea:

The Crimean Peninsula is dependent for fresh water on the canal.

Ukraine previously blocked water supplies to Crimea after Russia annexed the peninsula in 2014, causing water shortages in the region.

There is a risk that water levels in the North Crimea Canal, which carries fresh water to the peninsula from the Dnipro River, could fall after rupture of the dam.

On the nuclear plant:

The Zaporizhzhia Nuclear Power Plant, which is Europe's largest, gets its cooling water from the reservoir.

It is located on the southern side, now under Russian control.

Russia's state nuclear energy company Rosatom said on Tuesday there was no threat to the Moscow-controlled nuclear plant.

The International Atomic Energy Agency - the U.N. nuclear watchdog was closely monitoring the situation but that there was no immediate nuclear safety risk at (the) plant.

Kakhovka dam and reservoir



PM SVANidhi Scheme

Context :- Over 46.54 lakh small working capital loans have been disbursed to street vendors under the Prime Minister Street Vendor's AtmaNirbhar Nidhi (PM-SVANidhi) in the three years since it was launched on June 1, 2020.

A total of 46,54,302 loans had been disbursed. Out of those loans, about 40% (18,50,987) have been repaid so far.

Features of the PM-SVANidhi

About:

It is a Central Sector Scheme i.e., fully funded by Ministry of Housing and Urban Affairs with the following objectives:

- To facilitate working capital loan;
- To incentivize regular repayment; and
- To reward digital transactions

Introduction of 3rd term loan of up to ₹50,000 in addition to 1st & 2nd loans of ₹10,000 and ₹20,000 respectively.

The loans would be without collateral.

Lending Agencies:

Microfinance Institutions, Non-Banking Financial Company, Self Help Groups have been allowed due to their ground level presence and proximity to the urban poor including the street vendors.

Eligibility:

States/Union Territories (UTs):

The Scheme is available for beneficiaries belonging to only those States/UTs which have notified Rules and Scheme under Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.

Beneficiaries from Meghalaya, which has its own State Street Vendors Act may, however, participate.

Street Vendors:

The Scheme is available to all street vendors engaged in vending in urban areas.

Earlier the Scheme was available to all street vendors engaged in vending on or before March 24, 2020.

Benefits of Early Repayment:

Interest Subsidy:

On timely/early repayment of the loan, an interest subsidy of 7% per annum will be credited to the bank accounts of beneficiaries through direct benefit transfer on a six monthly basis.

Credit Limits Extension:

The scheme provides for the rise of the credit limit on timely/ early repayment of loans i.e. if a street vendor repays the installments on time or earlier, he or she can develop his or her credit score that makes him/her eligible for a higher amount of term loan.

No-Penalty on Early Repayment:

There will be no penalty on early repayment of loan.

Early repayment (or resettlement) is a clearance of debt or loan before the scheduled time.

Many banks and lenders charge penalties for repaying loans early

E-governance:

Encourage Digital Transactions:

The scheme incentivises digital transactions by the street vendors through monthly cash back.

Transparency:

In line with the vision of leveraging technology to ensure effective delivery and transparency, a digital platform with web portal/ mobile app is being developed to administer the scheme with end-to-end solution.

This platform will integrate the web portal/ mobile app with UdyamiMitra portal of SIDBI for credit management and PAiSA portal of MoHUA to administer interest subsidy automatically.

Financial Inclusion:

It will help in integrating the vendors into the formal financial system.

Who is a Street Vendor/hawker?

Any person engaged in vending of articles, goods, wares, food items or merchandise of daily use or offering services to the public in a street, footpath, pavement etc., from a temporary built up structure or by moving from place to place.

The goods supplied by them include vegetables, fruits, ready-to-eat street food, tea, pakodas, breads, eggs, textile, apparel, artisan products, books/ stationary etc. and the services include barber shops, cobblers, pan shops, laundry services etc.

Around 49.48 lakh street vendors have been identified in India.

Uttar Pradesh has the maximum at 8.49 lakh, followed by Madhya Pradesh at 7.04 lakh.

Delhi has only 72,457 street vendors.

No street vendor has been identified in Sikkim.

Unified Registration Portal for GOBARdhan Launched

Context :- Unified Registration Portal for GOBARdhan was launched as a part of the Government of India's initiative to convert waste to wealth and promote a circular economy.

Key Features of the Portal

About:

The Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti, has developed the portal to facilitate the setting up of Biogas/Compressed Biogas (CBG) plants.

Objectives and Scope:

The portal acts as a one-stop repository for assessing investment and participation in the Biogas/CBG sector at the pan India level.

It streamlines the process of setting up CBG/Biogas plants

Enrollment:

Any government, cooperative, or private entity intending to set up a Biogas/CBG/Bio CNG plant in India can enroll in the portal and obtain a registration number.

The registration number enables access to various benefits and support from the Ministries and Departments of the Government of India.

States are advised to prioritize the registration of their CBG/Biogas plant operators on the portal to avail existing and upcoming support from the Union Government.

Benefits:

Stakeholder Participation:

The launch of the portal demonstrates cooperative federalism, with stakeholders from central Ministries, line departments of the Centre and States collaborating on its

development and deployment.

The Union Minister of Jal Shakti emphasizes the significant achievements in waste to wealth generation through more than 650 GOBARdhan plants and the unified registration portal.

Ease of Doing Business:

The portal ensures ease of doing business and attracts greater investment from private players in the Biogas/CBG sector.

Aligns with Climate Action Goals:

It aligns with India's climate action goals, promotes clean energy, rural employment, improved health outcomes, and contributes to the Sustainable Development Goals (SDGs) and Govt. of India's Mission LiFE.

Strengthen Supply Chain:

The Union Government aims to strengthen the CBG/Biogas supply chain through biomass aggregation, grid pipeline connectivity, organic farming practices, research and development, and continuous engagement with stakeholders.

What is GOBARdhan Initiative?

About:

Galvanizing Organic Bio-Agro Resources Dhan (GOBARdhan) is a crucial umbrella initiative of the Ministry of Jal Shakti, Government of India.

In 2018, the government launched this scheme as a national priority project under the Swachh Bharat Mission Grameen-Phase II program.

Objective:

To support villages safely manage their cattle waste, agricultural waste and in long run all organic waste.

To support communities convert their cattle and organic waste to wealth using decentralized systems.

Promote environmental sanitation and curb vector borne diseases through effective disposal of waste in rural areas.

Convert organic waste, especially cattle waste to biogas and fertilizer for use in rural areas.

Potential Benefits:

Effective biodegradable waste management.

Reduction of GHG emission.

Reduction in import of crude oil.

Employment opportunity for the local community.

Boost to entrepreneurship.

Additional income for farmers/ local village community from organic waste.

Promotion of organic farming.

Models of Scheme:

Individual Household:

This model can be adopted by households which have three (3) or more cattles. The biogas and slurry generated from the plants are used for cooking and as manure by the households.

Community:

The Biogas plants can be constructed for a minimum number of households (5 to 10). The plants can be operated and managed by GP/SHGs.

The gas generated will be supplied to households/restaurants / institutions and slurry can be used by the community as organic manure in agriculture or sold to farmers.

Cluster:

In this model, individual Biogas plants are installed in number of households in a village/ group of villages.

The biogas generated is used by the households and the slurry is collected at a common place, separated to solid and liquid parts and then fortified and sold as biofertilizers.

Commercial CBG:

CBG plants can be set up by Entrepreneurs / Cooperative Societies/ Gaushalas etc.

The raw biogas produced is compressed and can be used as vehicular fuel and / or sold to industries.

The slurry generated is converted into organic manure / bio-fertilizer and can be sold to farmers.

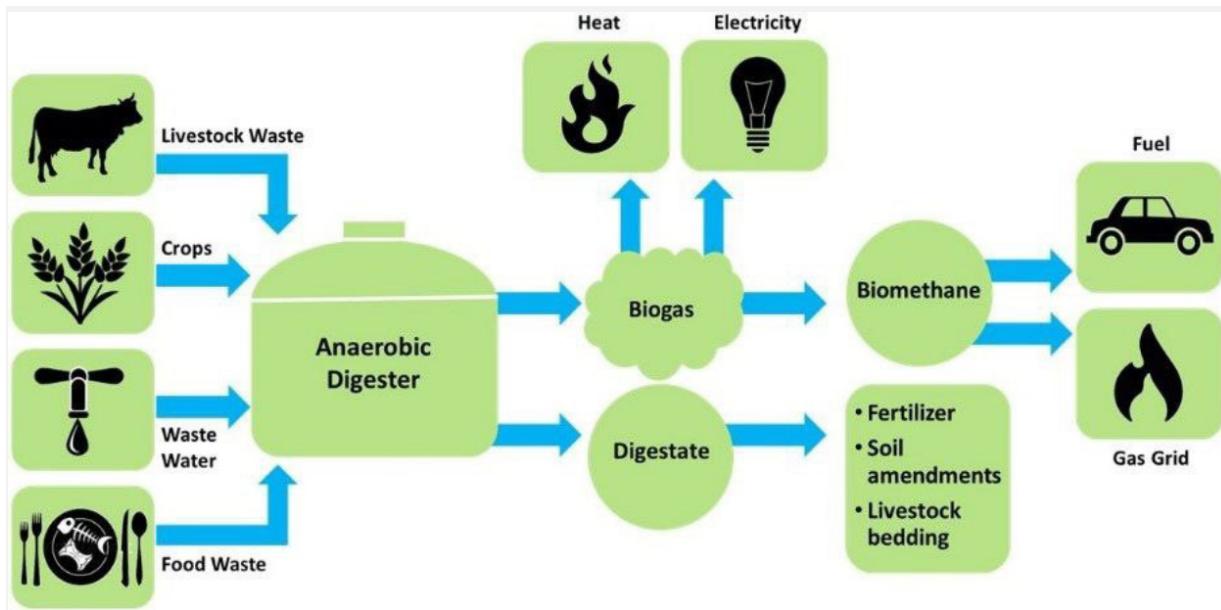
What is Biogas?

It mainly comprises hydro-carbon which is combustible and can produce heat and energy when burnt.

Biogas is produced through a biochemical process in which certain types of bacteria convert the biological wastes into useful bio-gas.

Since the useful gas originates from a biological process, it has been termed as bio-gas.

Methane gas is the main constituent of biogas.



Animal Birth Control Rules, 2023

Context :-

Ministry of Fisheries, Animal Husbandry & Dairying has issued the Animal Birth Control Rules, 2023. These Rules supersede the Animal Birth Control (Dog) Rules, 2001, and are issued under the Prevention of Cruelty to Animal Act, 1960.

Major Points Related to Animal Birth Control Rules, 2023

Background:

India recorded a whopping 160 million cases of street/stray dog bites between 2019 and 2022, according to data submitted in Parliament till November 2022.

This has also led to an increase in revenge crime and atrocities against dogs, feeders of dogs and caregivers as well as conflicts among urban residents.

Provisions:

The Rules have been formulated in accordance with the guidelines provided by the Hon'ble Supreme Court related to Animal Welfare Board of India and People for Elimination of Stray Troubles.

The Supreme Court has specifically mentioned in various orders that relocation of dogs cannot be permitted.

The Rules aim to provide guidelines for the sterilisation and immunisation of stray dogs through Animal Birth Control (ABC) programmes.

The responsibility of carrying out ABC programmes lies with the respective local bodies, municipalities, municipal corporations, and panchayats.

The Municipal Corporations are required to implement the ABC and Anti Rabies Program jointly.

It provides guidelines on how to deal with human and stray dog conflicts without relocating the dogs in an area.

It also emphasises addressing the cruelty involved in carrying out ABC programmes, ensuring animal welfare.

Rabies

About:

Rabies is a vaccine-preventable, zoonotic, viral disease affecting the central nervous system.

It is present on all continents except Antarctica, with over 95% of human deaths occurring in Asia and Africa.

Cause:

It is caused by a Ribonucleic Acid (RNA) virus that is present in the saliva of a rabid animal (dog, cat, monkey, etc).

It is invariably transmitted following a bite of an infected animal that leads to deposition of the saliva and the virus in the wound.

According to WHO, Dogs are the main source of human rabies deaths, contributing up to 99% of all rabies transmissions to humans.

Status in India:

India is endemic for rabies, and accounts for 36% of the world's rabies deaths.

According to WHO, about 30-60% of reported rabies cases and deaths in India occur in children under the age of 15 years as bites that occur in children often go unrecognised and unreported.

Treatment:

Rabies can be prevented by vaccinating pets, and seeking medical care after potential exposures before symptoms start.

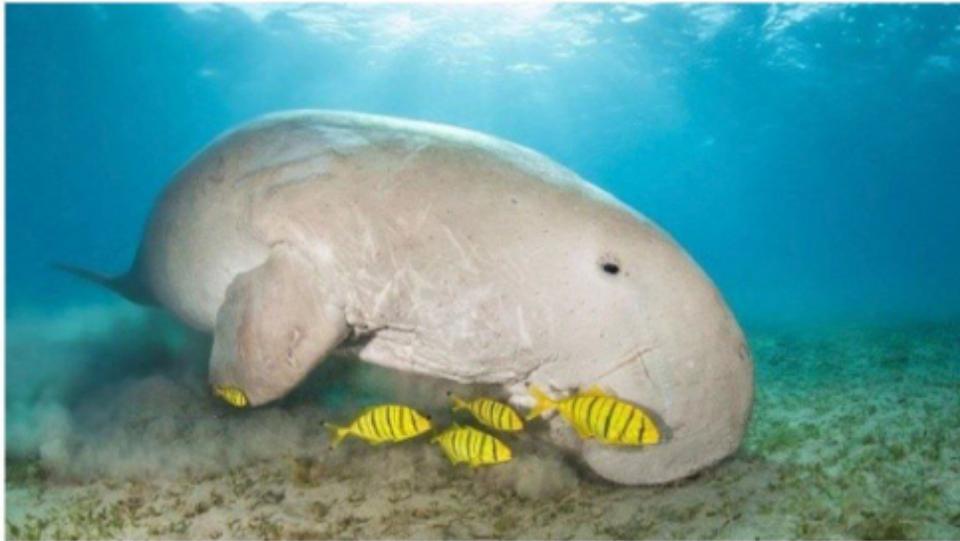
Initiatives Related to Rabies Control:

Indian:

National Action Plan for Dog Mediated Rabies Elimination by 2030 (NAPRE): The NAPRE was drafted by the National Centre for Disease Control (NCDC) in association with the Ministry of Fisheries, Animal Husbandry, and Dairying.

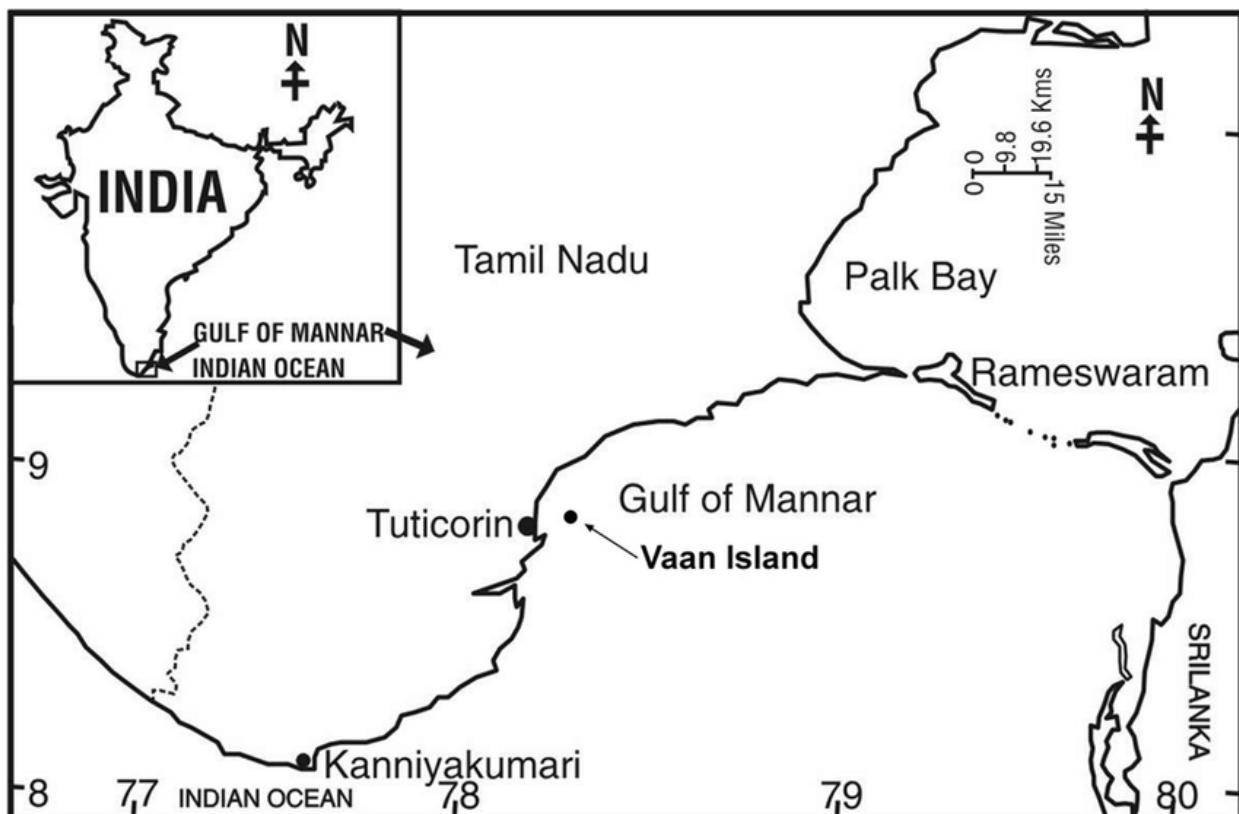
Its approach for elimination of rabies is based on recommendations of several international agencies like WHO and the Global Alliance of Rabies Control (GARC).

Gulf of Mannar

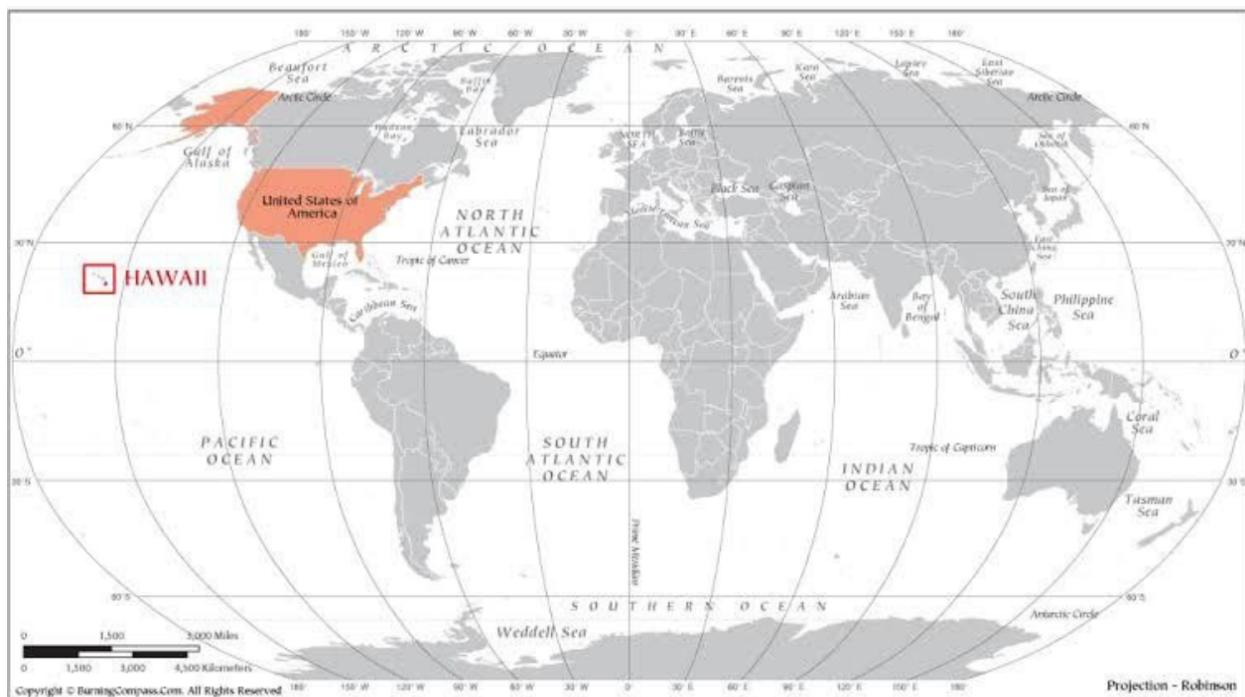


About Gulf of Mannar Marine National Park:

- Designated as a Biosphere Reserve, the Gulf of Mannar is **one of the biologically richest coastal regions in all of mainland of India**.
- It is the **first Marine Biosphere Reserve in the South and South East Asia**.
- **Location:** It is located 160 km between Dhanushkodi and Thoothukudi in Tamil Nadu.
- This Marine Biosphere Reserve **encompasses a chain of 21 islands** (2 islands already submerged) and adjoining coral reefs off the coasts.
- Gulf of Mannar Marine National Park, **established in 1980**, boasts three surreal aquatic ecosystems – mangroves, seagrass, and coral reef.

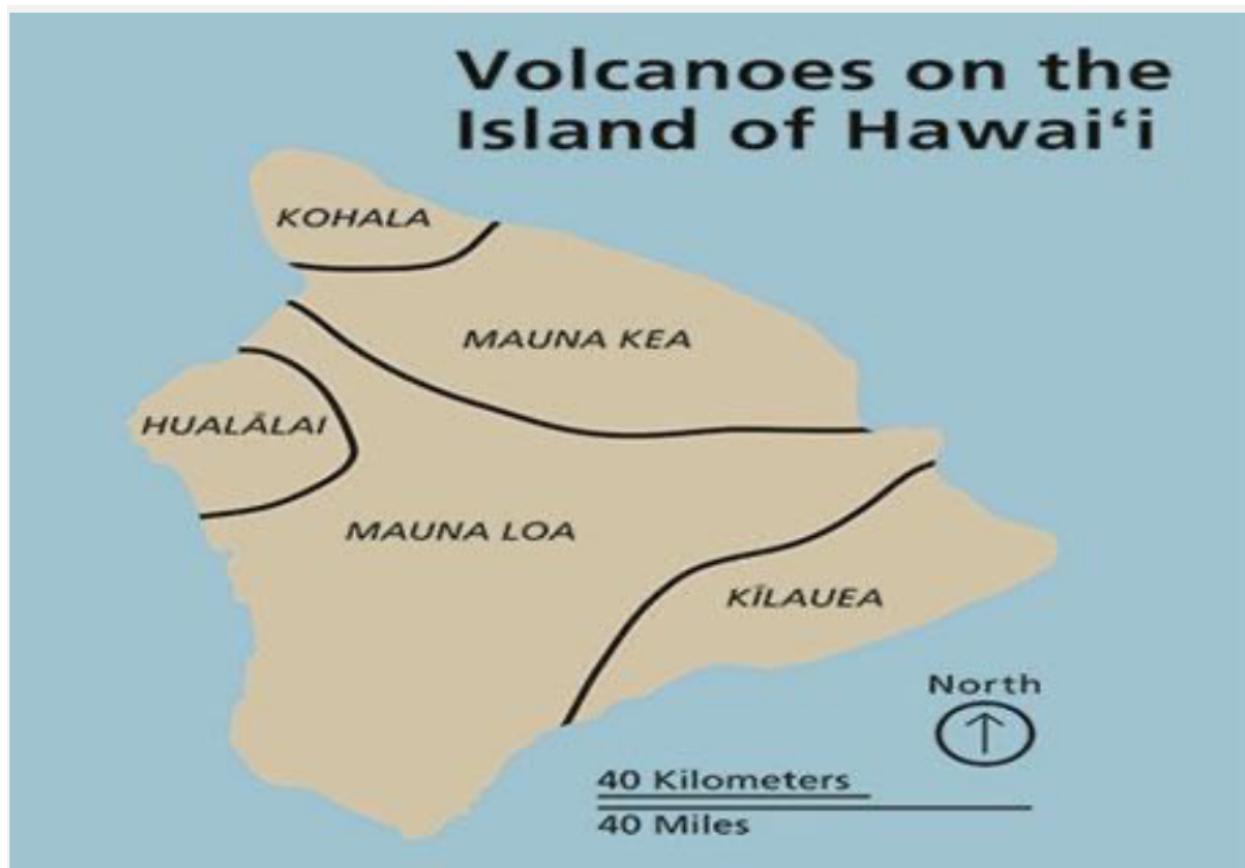


The Gulf of Mannar is separated from Palk Bay, which is located to the north between India and Sri Lanka, by the group of low islands and reefs known as Ram Sethu, which contains Mannar Island....



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Projection - Robinson



Kilauea Volcano: Hawaii

About:

Kilauea, also called **Mount Kilauea** ("Much Spreading" in Hawaiian), is located in Hawaii Volcanoes National Park on the southeastern part of the island of Hawaii, US.

Kilauea's slopes merge with those of the nearby volcano Mauna Loa on the west and north.

It is an elongated dome built of lava eruptions from a central crater and from lines of craters extending along east and southwest rifts, or fissures. The volcano's 4,090-foot summit has collapsed to form a caldera.

A caldera is a depression created after a volcano partially collapses after releasing the majority of its magma chamber in an explosive eruption.

Eruptive history:

The caldera was the site of nearly continuous activity during the 19th century and the early part of the 20th century.

It is one of the world's most active volcanoes, having erupted 34 times since 1952.

From 1983 to 2018, it erupted almost continuously. In December 2020, It erupted at the crater, creating a lake with enough lava to fill 10 Hoover dams. That eruption ended in May 2021.

Recently Erupted Volcanoes:

Sangay Volcano: Ecuador

Taal Volcano: Philippines

Mt. Sinabung, Merapi volcano, Semeru volcano (Indonesia)

Volcanoes in India:

Barren Island, Andaman Islands (India's only active volcano)

Narcondam, Andaman Islands

Baratang, Andaman Islands

Deccan Traps, Maharashtra

Dhinodhar Hills, Gujarat

Dhosi Hill, Haryana

Caldera

A caldera is a large depression formed when a volcano erupts and collapses. During a volcanic eruption, magma present in the magma chamber underneath the volcano is expelled, often forcefully. When the magma chamber empties, the support that the magma had provided inside the chamber disappears.

RBI's Monetary Policy Review

Context :-

Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) unveiled its latest review of the Monetary Policy.

What are the Highlights of the Review?

GDP Growth Forecast:

The MPC slashed its Gross Domestic Product (**GDP**) growth estimate to **6.8%** for the fiscal year 2022-23, from 7% earlier.

This comes a day after the **World Bank raised its growth forecast to 6.9%** for financial year 2022-23 from a revised 6.5% accounted in October 2022.

Inflation & Interest Rates:

The MPC has maintained the forecast for headline inflation (the total inflation in an economy) in the financial year 2022-23 at 6.7%.

RBI expects headline inflation to stay above the 6% mark for 15 straight months. Even after that, hitting the 4% level will likely take time.

Repo Rate:

The MPC increased the repo rate by 35 basis points (bps) to 6.25%

What is Monetary Policy Committee?

Origin:

Under Section 45ZB of the amended (in 2016) RBI Act, 1934, the central government is empowered to constitute a six-member Monetary Policy Committee (MPC).

Objective:

Further, Section 45ZB lays down that "the Monetary Policy Committee shall determine the Policy Rate required to achieve the inflation target".

The decision of the Monetary Policy Committee shall be binding on the Bank.

Composition:

Section 45ZB says the MPC shall consist of 6 members:

RBI Governor as its ex officio chairperson,

Deputy Governor in charge of monetary policy,

An officer of the Bank to be nominated by the Central Board,

Three persons to be appointed by the central government.

This category of appointments must be from "persons of ability, integrity and standing, having knowledge and experience in the field of economics or banking or finance or monetary policy".

What are the Instruments of Monetary Policy?

Repo Rate

Standing Deposit Facility (SDF) Rate

Marginal Standing Facility (MSF) Rate

Liquidity Adjustment Facility (LAF)

LAF Corridor

Main Liquidity Management Tool

Fine Tuning Operations

Reverse Repo Rate

Bank Rate

Cash Reserve Ratio (CRR)

Statutory Liquidity Ratio (SLR)

Open Market Operations (OMOs)

UPSC PYQ - 2015

Q- With reference to Indian economy, consider the following:

1-Bank rate

2-Open market operations

3-Public debt

4-Public revenue

Which of the above is/are component/ components of Monetary Policy?

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

Answer

Answer is C.

Agni-P (Prime)

GS Paper - 3

Achievements of Indians in Science & Technology

Defence Technology

Indigenization of Technology

Why in News

Recently, a new generation nuclear capable ballistic missile Agni-P (Prime) was successfully test-fired by the Defence Research and Development Organisation (DRDO) from Dr. APJ Abdul Kalam island off the coast of Odisha, Balasore.

Agni-P is a new generation advanced variant of the Agni class(under IGMDP - Integrated Guided Missile Development Program).

It is a canisterised missile with range capability between **1,000 and 2,000 km.**

Canisterisation of missiles reduces the time required to launch the missile while improving its storage and mobility.

Many advanced technologies including composites, propulsion systems, innovative guidance and control mechanisms and state-of-the-art navigation systems have been introduced. The Agni-P missile would further strengthen India's credible deterrence capabilities.

In comparison to other Agni class missiles, Agni-P has improved parameters including manoeuvring and accuracy.

Agni Class of Missiles:

They are the mainstay of India's nuclear launch capability.

Range of other Agni Missiles:

Agni I: Range of 700-800 km.

Agni II: Range more than 2000 km.

Agni III: Range of more than 2,500 Km

Agni IV: Range is more than 3,500 km and can fire from a road mobile launcher.

Agni-V: The longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM)with a range of over 5,000 km.

GS-3

Defence & Technology

IGMDP (Integrated Guided Missile Development Program)

It was conceived by Dr. A.P.J. Abdul Kalam to enable India to attain self-sufficiency in the field of missile technology. It was approved by the Government of India in 1983 and completed in March 2012.

The five missiles (P-A-T-N-A) developed under this program are:

Prithvi: Short-range **surface to surface** ballistic missile.

Agni: Ballistic missiles with different ranges, i.e., Agni (I, II, III, IV, V).

Trishul: Short-range **low-level surface to air missile.**

Nag: 3rd generation **anti-tank missile.**

Akash: Medium range **surface to air missile.**

Sengol to be Installed in New Parliament Building

Context :-

On May 28th 2023, the Prime Minister will inaugurate the new Parliament building, which is part of the **Central Vista redevelopment project.**

One of the highlights of the event will be the installation of a **historic golden sceptre, called Sengol**, near the Speaker's seat.

The Sengol is a symbol of **India's independence and sovereignty**, as well as its cultural heritage and diversity.

Historical Significance of Sengol

The Sengol is profound in meaning, derived from the **Tamil word "Semmai"**, it means "**Righteousness**". It was made of **gold or silver** and was often decorated with precious stones.

A Sengol sceptre was carried by emperors on ceremonial occasions, and used to represent their authority.

It is associated with the Chola Empire, one of the longest-ruling and most influential dynasties in South India.

The Cholas ruled over parts of [Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Telangana, Odisha, and Sri Lanka](#) from the 9th to 13th century CE.

They were known for their military prowess, maritime trade, administrative efficiency, cultural patronage, and temple architecture.

The Cholas had a tradition of handing over the Sengol sceptre from one king to another as a mark of succession and legitimacy.

The ceremony was usually performed by a high priest or a guru who blessed the new king and conferred him with the Sengol.

How did Sengol Become a Part of India's Independence?

Before independence from the British rule in 1947, the then Viceroy - Lord Mountbatten posed a question to the to-be Prime Minister Jawaharlal Nehru: "What is the ceremony that should be followed to symbolise the transfer of power from British to Indian hands?"

PM Nehru then consulted [C. Rajagopalachari, commonly known as Rajaji](#), who went on to become the last Governor-General of India.

Rajaji suggested that the Chola model of handing over the Sengol sceptre could be adopted as a suitable ceremony for India's independence.

He said that it would reflect India's [ancient civilisation and culture](#), as well as its [unity in diversity](#).

The Sengol sceptre was presented to PM Nehru by [Thiruvavaduthurai Adheenam](#) (a 500-year-old Saivaite monastery) on August 14, 1947.

A golden sceptre was crafted by [Yummidi Bangaru Chetty](#), a famous jeweller in Madras (now Chennai).

The Nandi, with its unyielding gaze as the beholder of "Nyaya", is hand-carved at the top.

Where is Sengol Now and Why is it Being Installed in the New Parliament Building?

After receiving the Sengol sceptre in 1947, Nehru kept it at his residence in Delhi for some time.

He then decided to donate it to [Anand Bhavan Museum in Allahabad](#) (now Prayagraj), his ancestral home.

The museum was established by his father Motilal Nehru in 1930 to preserve the history and legacy of India's freedom movement.

The Sengol sceptre remained at Anand Bhavan Museum for over seven decades.

In 2021-22, when the Central Vista redevelopment project was underway, the government decided to revive this historical event and install the Sengol sceptre in the new Parliament building.

It will be placed near the Speaker's seat in the new Parliament building and will be accompanied by a plaque that will explain its history and meaning.

The installation of Sengol in the new Parliament building is not just a symbolic gesture but also a meaningful message.

It signifies that India's democracy is rooted in its ancient traditions and values and that it is inclusive and respectful of its diversity and plurality.

What is the Central Vista Redevelopment Project?

The Central Vista Redevelopment Project is a project that aims to revamp the Central Vista, India's central administrative area located near Raisina Hill, New Delhi.

The area was originally designed by [Sir Edwin Lutyens and Sir Herbert Baker](#) during British colonial rule and was retained by Government of India after independence.

NCBC

National Commission for Backward Classes (NCBC)

What is NCBC?

102nd Constitution Amendment Act, 2018 provides **constitutional status** to the National Commission for Backward Classes (NCBC).

It has the authority to examine complaints and welfare measures regarding **socially and educationally backward classes**.

Previously NCBC was a statutory body under the Ministry of Social Justice and Empowerment.

What is the Background of NCBC?

Two Backward Class Commissions were appointed in 1950s and 1970s under **Kaka Kalelkar and B.P. Mandal respectively**.

Kaka Kalelkar commission is also known as the **First Backward Classes Commission**.

In Indra Sawhney case of 1992, Supreme Court had directed the government to create a permanent body to entertain, examine and recommend the inclusion and exclusion of various Backward Classes for the purpose of benefits and protection.

In pursuant to these directions parliament passed **National Commission for Backward Classes Act in 1993** and constituted the NCBC.

123rd Constitution Amendment bill of 2017 was introduced in Parliament to safeguard the interests of backward classes more effectively.

Parliament has also passed a separate bill to repeal the National Commission for Backward Classes Act, 1993, thus 1993 act became irrelevant after passing the bill.

The bill got the President assent in August 2018 and provided the constitutional status to NCBC.

What is the Structure of NCBC?

The Commission consists of five members including a **Chairperson**, Vice-Chairperson and three other Members appointed by the President by **warrant under his hand and seal.**

The **conditions of service and tenure of office of the Chairperson, Vice-Chairperson and other Members** is determined by President.

What are the Constitutional Provisions regarding NCBC?

Article 340 deals with the need to, inter alia, identify those "socially and educationally backward classes", understand the conditions of their backwardness, and make recommendations to remove the difficulties they face.

102nd Constitution Amendment Act inserted new Articles 338 B and 342 A.

The amendment also brings about changes in Article 366.

Article 338B provides authority to NCBC to examine **complaints and welfare measures regarding socially and educationally backward classes.**

Article 342 A empowers **President to specify socially and educationally backward classes in various states and union territories.**

He can do this in consultation with Governor of concerned State.

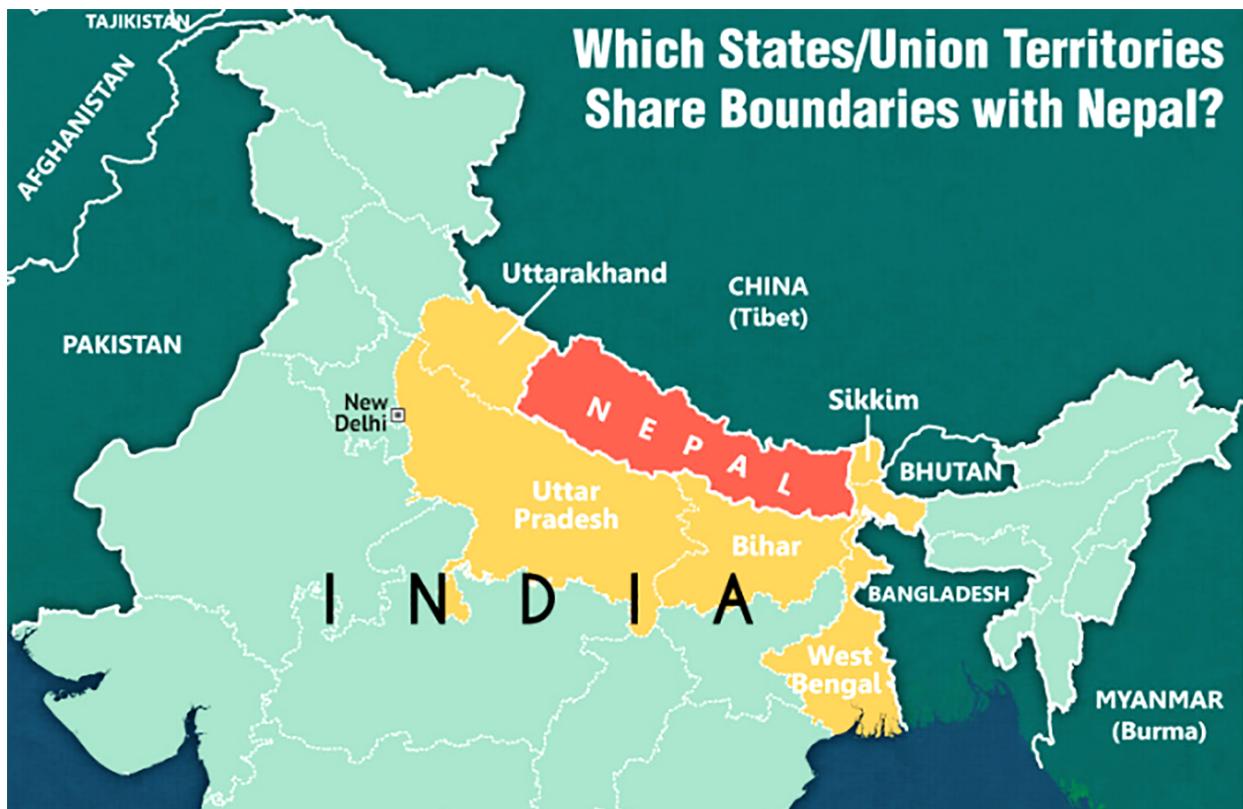
However, law enacted by Parliament will be required if list of backward classes is to be amended.

Illegal Muslim migrants being given reservations. More Muslims in OBCs even though Hindus in majority. West Bengal government did not give accurate responses.

Undocumented people should not be provided reservations.

India-Nepal

Strengthening India-Nepal Cooperation



Context :-

India and Nepal have recently unveiled several initiatives and agreements during the 4-day visit of the Prime Minister of Nepal to India to boost their bilateral cooperation in the fields of energy and transport development, aiming to strengthen ties and facilitate regional connectivity.

Major Highlights of Recent Agreement

Power Sector Cooperation:

Long-Term Power Trade Agreement: India and Nepal signed a long-term Power Trade Agreement, targeting the import of 10,000 MW of electricity from Nepal in the coming years.

Hydropower Projects: Memoranda of Understanding (MoUs) were signed between National Hydroelectric Power Corporation (NHPC), India and Vidyut Utpadan Company Ltd, Nepal for the development of the Phukot Karnali Hydroelectric Project and the Lower Arun Hydroelectric Project.

Also, the two Prime Ministers expressed their commitment to achieving tangible and time-bound progress on the Pancheshwar multipurpose project, which aims to enhance cooperation in harnessing the shared water resources of the Mahakali River.

Note: Phukot Karnali Hydro Electric Project aims to generate 480 MW of power using the flow from the Karnali River, with an average annual generation of about 2448 GWh. It includes a high RCC(Reinforced Concrete Cement) dam and an underground power house.

Transport Development:

Transmission Line and Rail Link: The groundbreaking ceremony for the Gorakhpur-Bhutwal Transmission Line and the inauguration of the Indian Railway cargo train from Bathnaha to Nepal Customs Yard highlighted the focus on enhancing connectivity between the two countries.

Integrated Checkposts (ICPs): ICPs were inaugurated at Nepalgunj (Nepal) and Rupaidiha (India), promoting smoother cross-border trade and facilitating the movement of goods and people.

Other Initiatives:

A plan to extend South Asia's first cross-border petroleum pipeline from Motihari in India to Amlekgunj in Nepal by another 69 km up to Chitwan in Nepal.

Also, a second cross-border petroleum pipeline from Siliguri in India to Jhapa in eastern Nepal.

A revised Treaty of Transit signed on June 1, 2023, that will give Nepal access to India's inland waterways.

This will enable Nepal to use Indian ports such as Haldia, Kolkata, Paradip and Visakhapatnam for its third-country trade.

It will also reduce transportation costs and time for Nepalese exporters and importers.

India is also cooperating with Nepal to set up a fertiliser plant, emphasising the importance of collaboration in the agricultural sector.

Other Areas of Cooperation Between India and Nepal

About:

As close neighbours, India and Nepal share unique ties of friendship and cooperation characterised by an open border and deep-rooted people-to-people contacts of kinship and culture.

The India-Nepal Treaty of Peace and Friendship of 1950 forms the bedrock of the special relations that exist between India and Nepal.

Nepal shares a border of over 1850 km with five Indian states – Sikkim, West Bengal, Bihar, Uttar Pradesh and Uttarakhand.

There has been a long tradition of free movement of people across the border.

Defence Cooperation:

India has been assisting the Nepal Army (NA) in its modernisation by supplying equipment and providing training.

The '[Indo-Nepal Battalion-level Joint Military Exercise Surya Kiran](#)' is conducted alternately in India and in Nepal.

Also, Currently, about [32,000 Gorkha Soldiers](#) from Nepal are serving in the Indian Army.

Economic Cooperation:

India is the largest trading partner of Nepal. Nepal is also India's 11th largest export destination.

In 2022-23, India exported goods worth USD 8 billion to Nepal while its imports were at USD 840 million.

Indian firms are among the largest investors in Nepal, accounting for more than 30% of the total approved foreign direct investments.

Cultural Cooperation:

India and Nepal share similar ties in terms of Hinduism and Buddhism with Buddha's birthplace Lumbini located in present day Nepal.

The Swami Vivekananda Centre for Indian Culture was set up in Kathmandu in August 2007 to showcase the best of Indian culture.

The Nepal-Bharat Library was founded in 1951 in Kathmandu. It is regarded as the first foreign library in Nepal.

Humanitarian Assistance:

India has provided 1.54 billion Nepalese Rupees (INR nearly 96 crore) to Nepal as part of its commitment towards assistance and rehabilitation after the 2015 earthquake .

What are Recent Major Issues Related to India-Nepal Relations?

Boundary Dispute: The boundary dispute is one of the contentious issues that has strained India-Nepal relations in recent years. The dispute mainly involves two segments:

Kalapani-Limpiyadhura-Lipulekh trijunction area in western Nepal and Susta area in southern Nepal.

Both countries claim these areas as part of their territory based on different historical maps and treaties.

The dispute flared up in 2020 when India inaugurated a road linking Dharchula in Uttarakhand with Lipulekh pass near the China border, which Nepal objected to as a violation of its sovereignty.

Nepal then issued a new political map that shows Kalapani-Limpiyadhura-Lipulekh as part of its territory. India rejected this map as "artificial enlargement" of Nepalese claims.

China's Rising Footprints:

The rise of China's influence in Nepal has raised concerns in India about its strategic interests in the region. China has increased its economic engagement with Nepal through projects under its Belt and Road Initiative (BRI) such as railways, highways, hydropower plants etc.

Rising Nepal and China cooperation can undermine Nepal's distinction of a buffer state between India and China.

Central Administrative Tribunal

About: It had been established under Article 323 - A of the Constitution.

It provides for adjudication of disputes and complaints with respect to recruitment and conditions of service of persons appointed to public services and posts in connection with the affairs of the Union or other authorities under the control of the Government.

Legal Framework: In pursuance of Article 323-A, Parliament passed the Administrative Tribunals Act in 1985.

The act authorizes the Central government to establish one CAT and the state administrative tribunals.

This act opened a new chapter in the sphere of providing speedy and inexpensive justice to the aggrieved public servants.

CAT was set up during the Prime Ministership of Rajeev Gandhi.

BENCHES: There are 19 Benches in the CAT all over India.

Objective and Composition: The CAT is a specialist body consisting of **Administrative Members and Judicial Members** who by virtue of their specialized knowledge are better equipped to dispense speedy and effective justice.

A Chairman who has been a sitting or retired Judge of a High Court heads the CAT.

Operating Principles: The Tribunal is guided by the **principles of natural justice in deciding cases** and is not bound by the procedure prescribed by the Civil Procedure Code.

Under Section 17 of the Administrative Tribunal Act, 1985, the Tribunal has been conferred with the power to exercise the same jurisdiction and authority in respect of contempt of itself as **a High Court**.

Independence: The conditions of service of the Chairman and Members are the same as applicable to a Judge of High Court as per the Administrative Tribunals (Amendment) Act, 2006.

Appeals against Orders: The orders of the CAT are challenged by way of a Writ Petition under Article 226/227 of the Constitution before the respective High Court in whose territorial jurisdiction the Bench of the Tribunal is situated.

UPSC PYQ - 2009

Consider the following statements:

1- Central Administrative Tribunal (CAT) was set up during the Prime Ministership of Lal Bahadur Shastri.

2- The Members for CAT are drawn from both judicial and administrative streams.

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

Answer

Answer is B.

Mekedatu Issue

Water sharing between **Karnataka and Tamil Nadu:**

Karnataka is supposed to release Cauvery water from three sources:

One being the water flowing in the areas downstream River Kabini, catchment areas of Krishnarajasagar reservoir, the sub-basins of Shimsha, Arkavathi, and Suvarnavathi rivers, and the water from minor rivers.

Secondly, water is released from **Kabini dam**.

The third source is water that is released from **Krishnarajasagar dam**.

In the case of the second and third sources, which are under the **control of Karnataka**, water is released to TN only after **storing sufficient water for their use**.

Since there is **no dam in the first source**, water from these areas have been **freely flowing into TN** without a hitch.

But now, TN state government felt that **Karnataka was "conspiring" to block this source** as well through the **Mekedatu dam**.

Mekedatu zone represented the **last free point from where Cauvery water flowed unrestricted into the downstream state of TN** from the upstream Karnataka.

What's the way out then?

The Centre has said the project required the approval of the Cauvery Water Management Authority's (CWMA).

The Detail Project Report (DPR) sent by Karnataka was tabled in the CWMA several times for approval, but the discussion on this issue could not take place due to a lack of consensus among party states Karnataka and Tamil Nadu.

Since the project was proposed across an inter-state river, it required approval of lower riparian state(s) as per the interstate water dispute act.

About the Project:

Mekedatu is a multipurpose (drinking and power) project.

It involves building a balancing reservoir, near Kanakapura in Ramanagara district in Karnataka.

The project once completed is aimed at ensuring drinking water to Bengaluru and neighboring areas (4.75 TMC) and also can generate 400 MW power.

The estimated cost of the project is Rs 9,000 crore.

Why Tamil Nadu is against this project?

It says, the CWDT and the SC have found that the existing storage facilities available in the Cauvery basin were adequate for storing and distributing water so Karnataka's proposal is ex-facie (on the face of it) untenable and should be rejected outright.

It has also held that the reservoir is not just for drinking water alone, but to increase the extent of irrigation, which is in clear violation of the Cauvery Water Disputes Award.

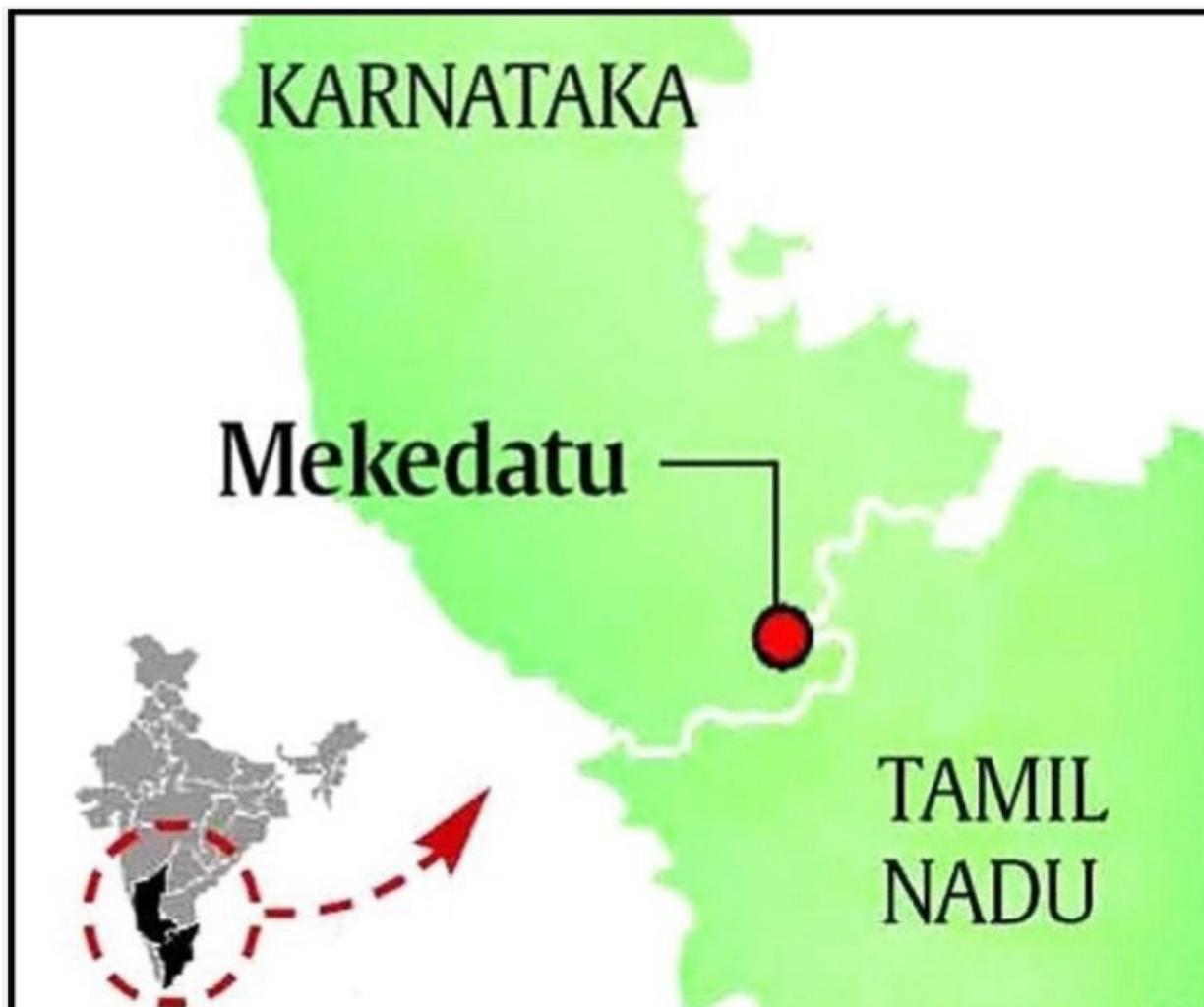
Award by the tribunal and the Supreme Court:

The tribunal was set up in 1990 and made its final award in 2007, granting 419 tmcft of water to Tamil Nadu, 270 tmcft to Karnataka, 30 tmcft to Kerala and 7 tmcft to

Puducherry. The tribunal ordered that in rain-scarcity years, the allocation for all would stand reduced.

However, both Tamil Nadu and Karnataka expressed unhappiness over the allocation and there were protests and violence in both states over water-sharing. That saw the Supreme Court take up the matter and, in a 2018 judgment, it apportioned 14.75 tmcft from Tamil Nadu's earlier share to Karnataka.

The new allocation thus stood at 404.25 tmcft for Tamil Nadu while Karnataka's share went up to 284.75 tmcft. The share for Kerala and Puducherry remained unchanged.



Jal Jeevan Mission

GS Paper - 2

GS Paper - 3

Government Policies & Interventions

Skill Development

Employment

What is Jal Jeevan Mission?

About:

Launched in 2019, it envisages supply of **55 litres of water per person per day** to every rural household through Functional Household Tap Connections (FHTC) by 2024.

JJM looks to create a **jan andolan** for water, thereby making it everyone's priority.

It comes under **Jal Shakti Ministry**.

Aims:

The mission ensures functionality of existing water supply systems and water connections, water quality monitoring and testing as well as sustainable agriculture.

It also ensures conjunctive use of conserved water; drinking water source augmentation, drinking water supply system, grey water treatment and its reuse.

Features:

JJM focuses on integrated demand and supply-side management of water at the local level.

Creation of local infrastructure for source sustainability measures as mandatory elements, like rainwater harvesting, groundwater recharge and management of household wastewater for reuse, is undertaken in convergence with other government programmes/schemes.

Implementation:

Paani Samitis plan, implement, manage, operate and maintain village water supply systems.

These consist of 10-15 members, with at least 50% women members and other members from Self-Help Groups, Accredited Social and Health Workers, Anganwadi teachers, etc.

The committees prepare a one-time village action plan, merging all available village resources. The plan is approved in a Gram Sabha before implementation.

Funding Pattern:

The fund sharing pattern between the Centre and states is 90:10 for Himalayan and North-Eastern States, 50:50 for other states, and 100% for Union Territories.

What has been the JJM's Performance so far?

As per the JJM dashboard, around 9.65 crore households (50.38%) have tap water connections across the nation as of 10th June, 2022.

At the State level, Goa, Telangana and Haryana have achieved 100% tap connectivity to all households in the State.

Union territories like Puducherry, the Andaman and Nicobar Islands, Dadra & Nagar Haveli and Daman & Diu have also provided 100 % of their households with tap water connections.

States with over 90 % FHTC (Functional Household toilet coverage) coverage are (approximate figures are in brackets) – Punjab at 99.72 %, Gujarat at 95.91 % , Himachal Pradesh at 93.05% and Bihar at 92.74%.

States with the least FHTC coverage are — Rajasthan at 24.87 % , Chhattisgarh at 23.10 % , Jharkhand at 20.57% and Uttar Pradesh at 13.86%

What is Jal Jeevan Mission(Urban)?

In the Budget 2021-22, Jal Jeevan Mission (Urban) has been announced under the Housing and Urban Affairs Ministry to provide universal coverage of water supply to all households through functional taps in all statutory towns in accordance with Sustainable Development Goal- 6.

It complements the Jal Jeevan Mission (Rural) which envisages supply of 55 litres of water per person per day to every rural household through Functional Household Tap Connections (FHTC) by 2024.

Objectives of Jal Jeevan Mission (Urban):

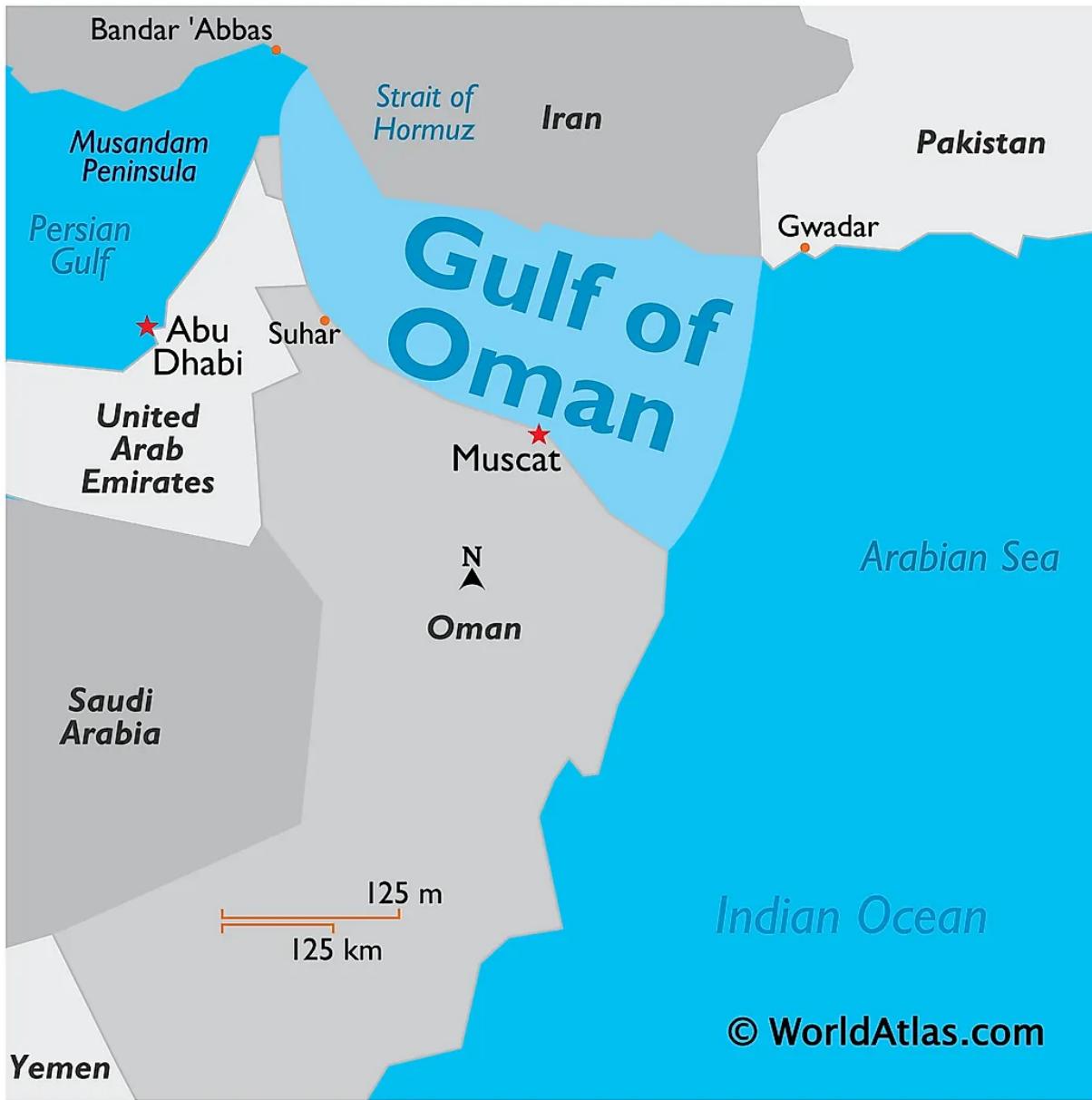
Securing tap and sewer connections

Rejuvenation of water bodies

creating circular water economy



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Chief Economic Advisor

The Chief Economic Adviser (CEA) is a post in the Government of India and is equivalent to the rank of Secretary to the Government of India.

The CEA is the ex-officio cadre controlling authority of the Indian Economic Service: The CEA is head of Economic Division of the Department of Economic Affairs, Ministry of Finance

Role of the CEA: The extent to which the Government takes into account the advice of the Chief Economic Adviser has generally been considered to be open-ended.

The main role of CEA is to produce an Economic Survey.

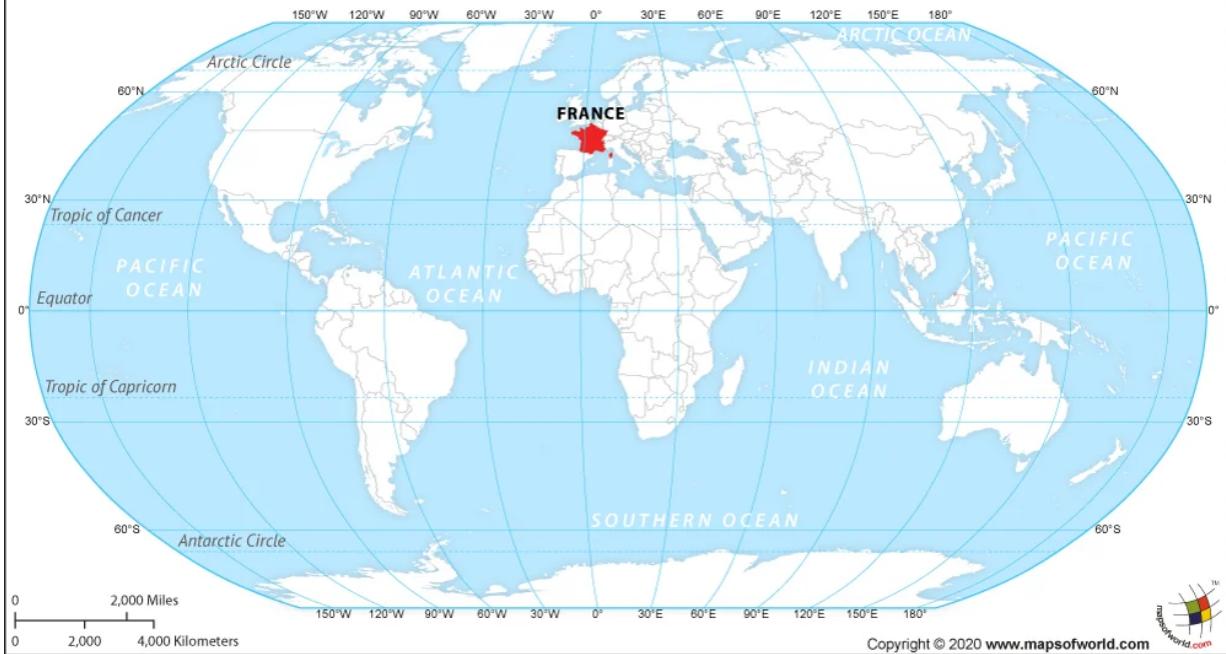
Who was the first Chief Economic Advisor of India?

Renowned economist JJ Anjaria (1908-70), who co-authored the classic text on Indian agricultural economics, 'The Indian Rural Problem', was the first Chief Economic Advisor of India.

He held the position from 1956 to 1961, during the tenure of former Prime Minister Jawaharlal Nehru.

Current affairs

FRANCE LOCATION MAP





World's most expensive mango 'Miyazaki' showcased at Siliguri Mango festival.

The world's most expensive mango 'Miyazaki' has been showcased in the 7th edition of the Mango Festival being held in West Bengal's Siliguri.

The three day long festival kicked off on 9 June and is being held at a mall located in **Matigara, Siliguri**.

The festival has been organised by Modella Caretaker Centre & School (MCCS), with Association for Conservation & Tourism (ACT), news agency ANI has reported. At the festival, more than 262 varieties of mangoes has been put on display of which Miyazaki has caught everyone's attentions as it is called the world's most expensive mango.

As reported by Siliguri Times, Shaukat Hussain, a farmer from the **Birbhum of West Bengal** has participated in the festival showcasing 10 pieces of Miyazaki mango. As per ANI, these mangoes are priced at ₹ ₹2.75 lakh per kg.

The Miyazaki mango which are usually found in Japan are now found in India in West Bengal's Birbhum district, a report by India Today stated on 3 June. As per the report, Miyazaki mango tree has been planted near a mosque in Dubrajpur city of Birbhum district and has been attracting people from across the state.

All you need to know about the Miyazaki Mango:

The Miyazaki mango was originally grown in Miyazaki city in Japan's Kyushu prefecture and its name is derived from the city of origin.

Known as the the 'Egg of the Sun' (Taiyo-no-Tamago in Japanese), these mango is usually over **350g** in weight and have **15 percent or higher sugar content**.

It is popular for its different appearance and colour than the usual mango varieties which are popular in India and Southeast Asia.

As per local report, the production of these Miyazaki mangoes started in Miyazaki in late 70s and early 80s. As per report, the **city's warm weather, its long hours of sunlight and abundant rain made it possible for the farmers to go for mango farming**. These mangoes are grown during the peak harvest between April and August.

These mangoes are said to be rich in **antioxidant and contain beta-carotene and folic acid**, which is great for people that need help with tired eyes, the trade promotion

centre said. They also help in preventing the reduced vision.

The variant is also cultivated in India, Bangladesh, Thailand and Philippines. Apart from West Bengal, media reports have arisen that claim two trees of this variant of mango is growing in Madhya Pradesh's Jabalpur city at the garden of a couple. As per reports, the couple said they were given the sapling of the plant by a man on a train.

Cotton in India

GS-3, Economy

Cotton in India

Cotton is an important fibre and cash crop which plays a dominant role in the industrial and agricultural economy of India.

India is the largest producer of cotton in the world and the third largest exporter. It is also the largest consumer of cotton in the world.

The pest-resistant Genetically Modified (GM) Bt cotton hybrids have captured the Indian market (covering over 95% of the area under cotton) since their introduction in 2002.

India produces about 6 million tons of cotton every year which is about 23% of the world cotton.

India produces about 51% of the total organic cotton production of the world.

Cotton

Kharif Crop which requires 6 to 8 months to mature.

Drought – resistant crop ideal for arid climates.

Occupies 2.1% of the world's arable land, meets 27% of the world's textiles need.

Temperature: Between 21-30°C.

Rainfall: Around 50-100cm.

Soil Type: Well-drained black cotton soil (Regur Soil) (E.g. Soil of Deccan Plateau)

Top Cotton Producing Countries: China > India > USA

Top Cotton Producing States in India: Gujarat > Maharashtra > Telangana > Andhra Pradesh > Rajasthan.

Four cultivated species of cotton: *Gossypium arboreum*, *G.herbaceum*, *G.hirsutum* and *G.barbadense*.

Gossypium arboreum and *G.herbaceum* are known as old-world cotton or Asiatic cotton.

G.hirsutum is also known as American cotton or upland cotton and *G.barbadense* as Egyptian cotton. These are both new world cotton species.

Hybrid Cotton: Cotton made by crossing two parent strains that have different genetic characters. Hybrids are often spontaneously and randomly created in nature when open-pollinated plants naturally cross-pollinate with other related varieties.

Bt Cotton: It is a genetically modified organism or genetically modified pest-resistant variety of cotton.

Cotton Corporation of India

CCI was established in 1970 under the administrative control of the Ministry of Textiles as a Public Sector Undertaking under the Companies Act 1956.

Headquarters: CBD Belapur, Navi Mumbai (Maharashtra)

Role: To undertake price support operations, whenever the market prices of cotton fall below the Minimum Support Prices (MSP) announced by Govt. of India, without any quantitative limit.

Cotton Research

The Central Institute for Cotton Research has campuses in Nagpur in Maharashtra state and Sirsa in Haryana state.

It is a central research institute established by the Indian Council of Agricultural Research (ICAR).

The ICAR-Central Institute for Research on Cotton Technology is situated in Mumbai.

Genetic Engineering Appraisal Committee

The Genetic Engineering Appraisal Committee (GEAC) functions under the Ministry of Environment, Forest and Climate Change (MoEF&CC).

The committee is also responsible for the appraisal of proposals relating to the release of genetically engineered (GE) organisms and products into the environment including experimental field trials.

GEAC is chaired by the Special Secretary/Additional Secretary of MoEF&CC and co-chaired by a representative from the Department of Biotechnology (DBT)

Cannabis

According to the WHO, cannabis is a generic term used to denote the several psychoactive preparations of the plant Cannabis sativa.

According to the WHO, cannabis is by far the most widely cultivated, trafficked and abused illicit drug in the world.

The major psychoactive constituent in cannabis is Delta9 tetrahydrocannabinol (THC).

According to the NDPS Act "cannabis plant" means any plant of the genus cannabis.

'Charas' is the separated resin extracted from the cannabis plant. The NDPS Act covers separated resin, in whatever form, whether crude or purified, obtained from the cannabis plant and also includes concentrated preparation and resin known as hashish oil or liquid hashish.

The Act defines 'ganja' as the flowering or fruiting tops of the cannabis plant but it clearly excludes the seeds and leaves.

The Act illegalises any mixture with or without any neutral material, of any of the two forms of cannabis, charas and ganja, or any drink prepared from it.

The legislature left seeds and leaves of the cannabis plant out of the ambit of the Act, because the serrated leaves of the plant have negligible THC content.

'Bhang', which is commonly consumed during festivals like Holi, is a paste made out of the leaves of the cannabis plant, and is hence not outlawed.

Similarly, CBD oil, an acronym for cannabidiol derived from the leaves of the cannabis plant, would not come under the NDPS Act.

The NDPS Act does not permit the recreational use of cannabis in India.

While CBD oil manufactured with a licence under the Drugs and Cosmetics Act, 1940 can be legally used, it is not very common.

India's Stand and Regulations:

India has voted with the majority to remove cannabis and cannabis resin from the list of most dangerous substances in the Convention.

Under India's Narcotic Drugs and Psychotropic Substances (NDPS) Act 1985, the production, manufacture, possession, sale, purchase, transport, and use of cannabis is a

punishable offence.

The Act was enacted in 1985 which succeeded the Dangerous Drugs Act 1930.

The Narcotics Control Bureau (NCB) is vested with the power to charge individuals in cases related to the illegal use and supply of narcotics.

Green Hydrogen

GS Paper - 2

Government Policies & Interventions

GS Paper - 3

Environmental Pollution & Degradation

Growth & Development

Conservation

Why in News

According to the International Renewable Energy Agency (IRENA), hydrogen will make up 12% of the energy mix by 2050.

The agency also suggested that about 66% of this hydrogen used must come from water instead of natural gas.

Recently, IRENA has released the 'World Energy Transitions Outlook' Report.

Hydrogen

Hydrogen is one of the most abundant elements on earth for a cleaner alternative fuel option.

Type of hydrogen depend up on the process of its formation:

Green hydrogen is produced by electrolysis of water using renewable energy (like Solar, Wind) and has a lower carbon footprint.

Electricity splits water into hydrogen and oxygen.

By Products : Water, Water Vapor.

Brown hydrogen is produced using coal where the emissions are released to the air.

Grey hydrogen is produced from natural gas where the associated emissions are released to the air.

Blue hydrogen is produced from natural gas, where the emissions are captured using carbon capture and storage.

Uses:

Hydrogen is an energy carrier, not an energy source and can deliver or store a tremendous amount of energy.

It can be used in fuel cells to generate electricity, or power and heat.

Today, hydrogen is most commonly used in petroleum refining and fertilizer production, while transportation and utilities are emerging markets.

Hydrogen and fuel cells can provide energy for use in diverse applications, including distributed or combined-heat-and-power; backup power; systems for storing and enabling renewable energy; portable power etc.

Due to their high efficiency and zero-or near zero-emissions operation, hydrogen and fuel cells have the potential to reduce greenhouse gas emission in many applications

Current Status Worldwide:

Less than 1% of hydrogen produced is green hydrogen.

Manufacturing and deployment of electrolyzers will have to increase at an unprecedented rate by 2050 from the current capacity of 0.3 gigawatts to almost 5,000 gigawatts.

Indian Scenario:

Consumption of Hydrogen: India consumes about six million tonnes of hydrogen every year for the production of ammonia and methanol in industrial sectors, including fertilisers and refineries.

This could increase to 28 million tonnes by 2050, principally due to the rising demand from the industry, but also due to the expansion of transport and power sectors.

Cost of Green Hydrogen: By 2030, the cost of green hydrogen is expected to compete with that of hydrocarbon fuels (coal, Crude Oil, natural gas).

The price will decrease further as production and sales increase. It is also projected that India's hydrogen demand will increase five-fold by 2050, with 80% of it being green.

Exporter of Green Hydrogen: India will become a net exporter of green hydrogen by 2030 due to its cheap renewable energy tariffs.

Benefits of Using Green Hydrogen for India:

Green hydrogen can drive India's transition to clean energy, combat climate change.

Under the Paris Climate Agreement, India pledged to reduce the emission intensity of its economy by 33-35% from 2005 levels by 2030.

It will reduce import dependency on fossil fuels.

The localisation of electrolyser production and the development of green hydrogen projects can create a new green technologies market in India worth \$18-20 billion and

thousands of jobs.

Potential:

India has a favourable geographic location and abundance of sunlight and wind for the production of green hydrogen.

Challenges

High Costs and Lack of Supporting Infrastructure:

Fuel cells which convert hydrogen fuel to usable energy for cars, are still expensive.

The hydrogen station infrastructure needed to refuel hydrogen fuel cell cars is still widely underdeveloped.

Step Taken:

The Union Budget for 2021-22 has announced a National Hydrogen Energy Mission (NHM) that will draw up a road map for using hydrogen as an energy source.

Indian Initiatives for Renewable Energy:

Kakhovka Dam:

It is located on the Dnieper or Dnipro River in southern Ukraine which was built as part of the Kakhovka hydroelectric power plant.

The reservoir also supplies water to the Crimean Peninsula and the Zaporizhzhia nuclear plant

Zaporizhzhia nuclear plant is Europe's largest and gets its cooling water from the reservoir which is located on the southern side, now under Russian control.

It holds water a volume about equal to the Great Salt Lake in the U.S.

Key facts about the Dnieper

It is the fourth longest river in Europe.

It runs a total length of 1,368 miles extending from the uplands of Russia's Valdai Hills.

It flows in a southerly direction through western Russia, Belarus, and Ukraine before emptying into the Black Sea.

TAURINE DEFICIENCY

What is Taurine?

Taurine is a type of amino acid, which are the building blocks of all proteins. Taurine is exclusively found in animal-based proteins. It is critical for normal vision, digestion, heart muscle function, to maintain normal pregnancy and foetal development, and to maintain a healthy immune system. Taurine is an essential amino acid in the cat.

What is an essential amino acid?

When a human or animal eats proteins, the proteins are broken down into their individual amino acid components before they are absorbed.

Some of the amino acids can be manufactured within the body from other amino acids while others are essential. Different species of animals have different essential amino acid requirements.

Most mammals are able to manufacture enough taurine from other amino acids to meet their needs. However, cats have a limited ability to manufacture taurine; therefore, taurine is classified as an essential nutrient in the cat.

Importance of Amino Acids:

Amino acids help the body's cells create proteins needed for the proper functioning of every part of the human and feline body. The acids aid in the metabolic process and play an important role in the transportation and storage of nutrients.

Although many amino acids are produced by the body, some can only be obtained through food. Amino acids that must be obtained through diet alone are known as "essential" amino acids. Although people and dogs can synthesize taurine from other amino acids, cats cannot. If they don't receive enough of this essential amino acid in their food, their health will eventually begin to decline.

How are the cyclones named?

In 2000, a group of nations called **WMO/ESCAP** (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), which comprised **Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand**, decided to start naming cyclones in the region.

After each country sent in suggestions, the **WMO/ESCAP Panel on Tropical Cyclones (PTC) finalised the list**. The list of 169 cyclone names released by IMD in April 2020 were provided by these countries — 13 suggestions from each of the 13 countries.

The WMO/ESCAP expanded to include five more countries in **2018** — **Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen**.

What are the guidelines to adopt names of cyclones?

While picking names for cyclones, here are some of the rules that countries need to follow. If these guidelines are followed, the name is accepted by the panel on tropical cyclones (PTC) that finalises the selection:

- The **proposed name** should be **neutral to**
- (a) politics and political figures
 - (b) religious beliefs,
 - (c) cultures and
 - (d) gender

Name should be chosen in such a way that it **does not hurt the sentiments of any group** of population over the globe

It should **not be very rude and cruel** in nature

It should be **short, easy to pronounce and should not be offensive** to any member

The maximum length of the name will be **eight letters**

The proposed name should be provided with its **pronunciation and voice over**

The names of tropical cyclones over the **north Indian Ocean will not be repeated**.

Once used, it will cease to be used again. Thus, the name should be new.

How are cyclones formed?

Cyclones are formed **over the oceanic water** in the **tropical region**.

In this region, the **sunlight is highest** which results in **warming of land and water surface**. Due to warming of the surface, the warm moist air over the ocean rises upwards following which cool air rushes in to fill the void, they too get warm and rise — the cycle continues.

But what creates the spin?

Wind always blows from high pressure to low pressure areas. High pressure areas are created in the cold region while low is created in the warm regions. Polar regions are high pressure areas as the amount of sunlight here is less than the tropical region. So, wind blows from polar regions to tropical regions.

So, wind is already blowing in a direction. But when it reaches the warmer place, cool air starts getting attracted to the centre to fill the gap. So while moving to the centre, cool air keeps getting deflected resulting in circulation of wind movement — this process continues until the cyclone hits the land.

Cyclone Mandous

Context:- Recently, it has been reported that a cyclone may impact the Tamil Nadu and Puducherry coasts from 8th December 2022 onwards.

What is Cyclone Mandous?

Mandous is a **slow-moving cyclone** that often **absorbs a lot of moisture**, carries a **humongous amount of rainfall** and gains strength in the form of **wind speeds**.

The name has been suggested by the **United Arab Emirates**.

India Meteorological Department's (IMD) predicted that the storm system may **move in the west and northwestward directions** and intensify **into a depression** by the evening of December 6.

It may subsequently strengthen further into a cyclone over southwest Bay of Bengal and move towards the Tamil Nadu and Puducherry coasts by the morning of December 8.

What is a Cyclone?

Cyclones are rapid inward air circulation around a low-pressure area. The air circulates in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.

Cyclones are usually accompanied by violent storms and bad weather.

The word Cyclone is derived from the Greek word Cyclos meaning the coils of a snake. It was coined by Henry Peddington because the tropical storms in the Bay of Bengal and the Arabian Sea appear like coiled serpents of the sea.

There are two types of cyclones:

Tropical cyclones;

Extra Tropical cyclones (also called Temperate cyclones or middle latitude cyclones or Frontal cyclones or Wave Cyclones).

Tropical cyclones develop in the region between the Tropics of Capricorn and Cancer.

Extra tropical cyclones occur in temperate zones and high latitude regions, though they are known to originate in the Polar Regions

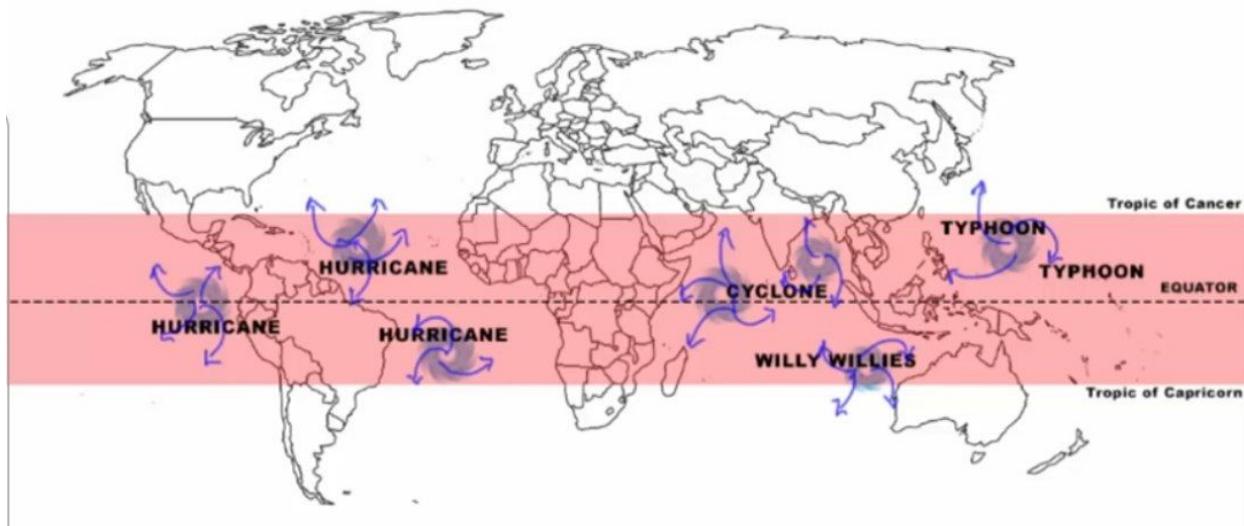
How are Names of Cyclones Decided?

Cyclones that form in every ocean basin across the world are named by the regional specialised meteorological centres (RSMCs) and Tropical Cyclone Warning Centres (TCWCs). There are six RSMCs in the world, including the India Meteorological Department (IMD), and five TCWCs.

In 2000, a group of nations called WMO/ESCAP (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), which comprised Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand, decided to start naming cyclones in the region. After each country sent in suggestions, the WMO/ESCAP Panel on Tropical Cyclones (PTC) finalised the list.

The WMO/ESCAP expanded to include five more countries in 2018 — Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.

Tropical Cyclones



Sambar Deer

Vulnerable –IUCN Red List

Nocturnal and solitary

Native range — Indian subcontinent, southern China, and Southeast Asia

Habitat

Thorn and arid forests — Gujarat and Rajasthan

Moist and dry deciduous forests — peninsular India

Pine and oak forests — Himalayan foothills

Evergreen and semi-evergreen forests — northeastern India and the Western Ghats

Temperate-latitude and alpine-zone woodlands – Taiwan

Threat

hunted for sport, food, medicinal products and other purpose

industrial exploitation of habitat

conservation

Schedule – I of wildlife (Protection) act, 1972

Protected areas like Kanha, Corbett, Ranthambore, Bandhavgarh, Gir, Dudhwa, Manas, Kaziranga and Sariska

Dal Lake

Context: Srinagar's Dal Lake along with five other famous ones in Jammu and Kashmir are to be declared **protected wetlands**.

Dal Lake:

It is a lake in Srinagar, the summer capital of Jammu and Kashmir, India.

It is an urban lake, which is the second largest in the union territory of Jammu and Kashmir.

It is named the "Lake of Flowers", "Jewel in the crown of Kashmir" or "Srinagar's Jewel".

The lake is also an important source for commercial operations in fishing and water plant harvesting

Context :- To unlock the full potential of India's future, we have to prioritise the health and nutrition of its adolescent girls. Adolescence is a pivotal period of cognitive development and, therefore, improving access to nutrition during this "second window of opportunity of growth" compensates for any nutrient deficiencies acquired during

early developmental stages in the girl child. Furthermore, adolescent health is a significant indicator of women's labour force participation in India in the long term, as better nutrition improves every young girl's prospect to participate in productive activities. Thus, the country beholds a colossal opportunity to add to its nation's demographic dividend by investing in nutrition interventions in adolescent girls.

Ever-growing nutritional concern

Adolescent girls are particularly vulnerable to undernutrition and anaemia due to the onset of menstruation. The findings of the National Family Health Survey-5 (2019-21) confirm these concerns, as a staggering 59.1% of adolescent girls were found to be anaemic. With the NFHS-4 numbers also having reported over 41.9% of school-going girls as underweight, the numbers showcase a worrying trend. What makes the situation more complex is the fact that a range of factors, from environmental conditions to cultural norms that lack a gender-neutral environment within a household, affects the nutrition uptake in adolescent girls.

While progress has been made in improving crucial health indicators in the form of various government initiatives that have successfully achieved optimum coverage, it is however essential to acknowledge that current health interventions do not specifically focus on the nutritional statuses of adolescent girls.

We are, as a nation, far from realising the long-term consequences of overlooking the nutritional needs of young girls. Poorly balanced and insufficient diets can lead to cognitive impairments that affect one's academic performance.

This can result in lower educational attainment, which can limit opportunities for employment and economic self-sufficiency later in life. Undernourished adolescent girls are also at a higher risk of chronic diseases and pregnancy complications, which can lead to a higher health-care burden on both families and communities, potentially leading to financial instability and increased poverty.

If our girls are less healthy and less educated, they are less likely to participate fully in society, whether through work, politics, or community involvement.

Redefine the interventions

Therefore, it is imperative that we redefine interventions such that we not only centre it around good nutrition but also adopt a life-cycle approach, ensuring that no girl gets left behind. This investment can also help break the intergenerational cycle of poverty, as well-nourished girls are more likely to have healthy babies and provide better care for their families. Thus, investing in girls' nutrition is not only the moral obligation of the state but also an economic one, with potential returns in the form of greater and more sustainable economic growth of the nation.

Additionally, a few strategic modifications to existing interventions can significantly expand the scope of its outcomes. The convergence of various government initiatives such as the Scheme for Adolescent Girls (SAG) within the umbrella of the Prime Minister's Overarching Scheme for Holistic Nutrition programme (POSHAN) 2.0 is a step in the right direction, provided it is implemented effectively.

Targeted adolescent-oriented schemes such as the Rashtriya Kishor Swasthya Karyakram (RKS) could include even stronger awareness and nutrition education programmes that would help sustain beneficiary compliance. Targeted and regionally contextualised Social and Behaviour Change Communication (SBCC) efforts around adolescent girls' nutrition are sure to generate greater demand and the adoption of good practices.

or improved outcomes, it is very imperative for effective convergence and collaborations among all the relevant departments, in a way that fosters a collective endeavour. Routine training of health workers for effective implementation and monitoring of various schemes, and to adapt with an evolving landscape, is also a crucial step in this process.

Use evidence and data

A holistic narrative on adolescent girls' nutrition, explaining its linkages with overall mental and physical well-being, individual productivity and overall economic growth of the country is needed. This must be packed with evidence/data that effectively appeals to all, to those outside the technical community, and must be framed to make it actionable. This also immediately brings about the need for disaggregated data that allows for effective interpretation.

As an elected representative, it is my duty to amplify this vital discourse on nutrition, to work towards protecting and improving the nutritional status of adolescent girls in our country. It is crucial to acknowledge that tackling the complex issue of nutrition among adolescent girls is not just a health concern, but is an investment in the future of the nation.

We have an enormous responsibility, as well as a tremendous opportunity, to ensure the welfare and the upliftment of the nation by prioritising the nutritional needs of India's girls. The strength of a nation is measured by its ability to nurture its future generations; hence, let us work collectively to sow the seeds of a healthier, stronger India, where every girl can reach her full potential.

Governor's role

The Legislature of a State comprises the Governor and the Legislative Assembly (if the State has one House) and a Legislative Council (if the State has two Houses). The Governor has little autonomy in his functioning — it is a settled legal position that he can act only on the "advice" of his Council of Ministers, with the Chief Minister as the head of the Council. The intention of the framers of the Constitution was for the President or Governor to act only on the advice of the Council of Ministers. Actual governance of the country/State is by the Prime Minister or the Chief Minister as the case maybe.

There is, however, a caveat to this. There are certain instances where a Governor can exercise his discretion independent of the Council of Ministers. Whether a Governor has discretion or not in a particular matter is significant since, as per Article 163(2) of the Constitution, this decision of his cannot be challenged. In *Shamsher Singh v State of Punjab* (1974), the Supreme Court held that a President or a Governor can exercise their discretion independent of their Ministers only where the Constitution expressly permits them to do so.

Article 200 states that when the Governor is presented with a Bill, he can either give his assent or withhold it or return the Bill with certain suggestions. The first proviso of the Article states that after a Bill is presented to him, the Governor may, as soon as possible,

return the Bill if it is not a Money Bill with a message to reconsider the Bill as a whole or any part thereof.

The House has six months to decide whether or not to accept this request. Once the House returns the Bill to the Governor, he has no choice but to give his assent whether or not his recommendations have been accepted. The second proviso of the Article gives the Governor discretion to refer a Bill to the President if he is of the opinion that the Bill, if passed, would take away the powers of the High Court. The procedure to be followed when presidential assent for such a Bill is required is set out in Article 201 of the Constitution.

The discretion of the Governor does not contemplate an indefinite withholding of assent to a Bill. Such an action would cause a breakdown of the constitutional machinery. To what extent the Governor's autonomy is recognised under the Constitution can be seen from a few judgments of the Supreme Court.

Conclusion

The Governor, therefore, has no discretion to indefinitely withhold assent to a Bill. If a Bill is presented to him, it has to be returned with recommendations or given assent as soon as possible. If it takes away the power of the High Court, the Governor has the discretion to refer it for the President's consideration. Refusing to act on a Bill is in violation of the Constitution, and a Governor's action or inaction in this regard would be susceptible to judicial review.

El Nino 2023: Unusual Warming Like 2009

Context :- Recently, an unusual phenomenon is developing along the equatorial Pacific region, indicating the emergence of El Nino conditions in 2023. Experts warn that this simultaneous warming of the eastern and western regions of the equatorial Pacific, a trend last observed in 2009, could have severe implications for marine life worldwide.

Causes for this Phenomenon

The eastern Pacific is getting warmer, which should make the west cooler.

However, due to global warming, there is basin scale warming across the tropical Pacific.

Two things could have triggered this phenomenon:

Global warming in the Pacific and other modes of natural variability

The transition from La Niña winter into an El Niño summer which is part of the El Niño-Southern Oscillation (ENSO) cycle.

Previous El Niño Events:

El Niño events of 1982-83 and 1997-98 were the most intense of the 20th century.

During the 1982-83 event, sea surface temperatures in the eastern tropical Pacific were 9-18° F above normal.

The El Niño event of 1997-98 was the first El Niño event to be scientifically monitored from beginning to end.

The 1997-98 event produced drought conditions in Indonesia, Malaysia, and the Philippines. Peru and California experienced very heavy rains and severe flooding.

The Midwest experienced record-breaking warm temperatures during a period known as “the year without a winter.”

The El Niño, along with global warming, had made 2016 the warmest year on record.

Impact El Niño 2023 on India

Weak Monsoon for India: The development of an El Niño in May or June 2023 may cause weakening of the southwest monsoon season, which brings around 70% of the total rainfall India receives and on which most of its farmers still depend.

However, sub-seasonal factors such as the Madden-Julian Oscillation (MJO) and monsoon low-pressure systems can temporarily enhance rainfall in some parts as witnessed in the year 2015.

Hot Temperatures: It may also cause heatwaves and droughts in India and other regions around the world such as South Africa, Australia, Indonesia and the Pacific Islands.

'Biparjoy' was suggested by Bangladesh and the word means 'disaster' or 'calamity' in Bengali. The naming of cyclones is done by countries on a rotational basis, following certain existing guidelines

Amrabad Tiger Reserve (ATR):

Location: It is located in the Nagarkurnool and Nalgonda districts in the southern part of Telangana.

Spread over 2611.4 square kilometers, it is one of the largest tiger reserves in India.

It was notified as a sanctuary in 1983, and after the State bifurcation, it was declared as Amarabad Tiger Reserve in 2015.

ATR covers a part of the Nallamala Forest and is home to a variety of flora and fauna.

The hilly terrain of this Tiger Reserve, with deep valleys and gorges, forms the catchment of the Krishna River.

Flora:

Dense grass occurs in 30% of the area and is scattered in an additional 20%.

Dominant tree species include Terminalia tomentosa, Hardwickia binata, Madhuca latifolia, Diospyros melanoxylon, Gardenia latifolia etc.

Fauna:

Major wild animals found are Tiger, Leopard, Wild dog, Indian Wolf, Indian fox, Rusty-spotted cat, Small Indian civet, Sloth bear, Honeybadger, Wild boar etc.

Over 303 bird species have been identified in this region. Some important groups include Eagles, Pigeons, Doves, Cuckoos, Woodpeckers, Drongos etc

Diego Garcia island



It is a coral atoll, the largest and southernmost member of the Chagos Archipelago, in the central Indian Ocean.

It is a part of the British Indian Ocean Territory.

It consists of a V-shaped sand-fringed cay and its lagoon is open at the north end.

This island was discovered by the Portuguese in the early 16th century.

Key facts about the Chagos Archipelago

It is part of the British Indian Ocean Territory (BIOT) and Mauritius claims the archipelago as its own.

In 1810, Mauritius was captured by the United Kingdom and France ceded the territory in the Treaty of Paris.

In 1965, three years before Mauritius got its independence, Britain separated the Chagos islands to carve out a 'British Indian Ocean Territory'.

In 1966, the UK leased Diego Garcia (the biggest island in the Chagos archipelago) to the US to create an air & naval base. For constructing the defence installation, the inhabitants of the island were forcibly removed.

In 1968 Mauritius was granted independence.

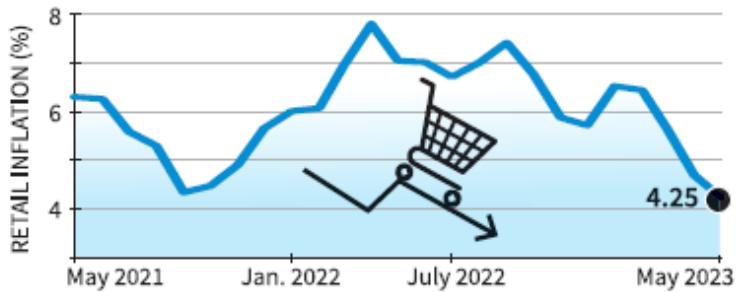
In June 2017, the UN General Assembly adopted a resolution calling on the ICJ to deliver an advisory opinion on whether the continued administration of the Chagos Archipelago by the United Kingdom following the 1968 decolonisation process of Mauritius was lawful.

In February 2019, the International Court of Justice (ICJ) issued an advisory opinion that Britain has an obligation to end its administration of the Chagos Archipelago — home to the U.S. military base of Diego Garcia — and complete the process of decolonisation of Mauritius.

INFLATION

Cooling down

India's retail inflation decelerated to 4.25% in May from 4.7% in April. Retail inflation has been below RBI's upper threshold of 6% and is now closer to RBI's medium-term target of 4%



What is Inflation?

Inflation refers to the **rise in the prices of most goods and services of daily or common use**, such as food, clothing, housing, recreation, transport, consumer staples, etc.

Inflation measures the **average price change in a basket of commodities and services over time**.

The opposite and rare **fall in the price index of this basket of items is called 'deflation'**.

Inflation is indicative of the **decrease in the purchasing power of a unit of a country's currency**. This could ultimately lead to a deceleration in economic growth.

However, a moderate level of inflation is required in the economy to ensure that production is promoted.

Who measures Inflation in India?

Inflation is measured by a central government authority, which is in charge of adopting measures to ensure the smooth running of the economy. In India, the **Ministry of Statistics and Programme Implementation** measures inflation.

In India, inflation is primarily measured by two main indices — **WPI (Wholesale Price Index)** and **CPI (Consumer Price Index)** which measure wholesale and retail-level price changes, respectively. The CPI calculates the difference in the price of commodities and

services such as food, medical care, education, electronics etc, which Indian consumers buy for use.

What are the main causes of Inflation?

Some key reasons for Inflation:

High demand and low production or supply of multiple commodities create a demand-supply gap, which leads to a hike in prices.

Excess circulation of money leads to inflation as money loses its purchasing power.

With people having more money, they also tend to spend more, which causes increased demand.

Spurt in production prices of certain commodities also causes inflation as the price of the final product increases. This is called cost-push inflation.

Increase in the prices of goods and services is also a factor to consider as the involved labour also expects and demands more costs/wages to maintain their cost of living. This spirals to further increase in the prices of goods.

Consumer Price Index

It measures price changes from the **perspective of a retail buyer**. It is released by the **National Statistical Office (NSO)**.

The CPI **calculates the difference in the price of commodities and services such as food, medical care, education, electronics etc, which Indian consumers buy for use**.

The CPI has several sub-groups including food and beverages, fuel and light, housing and clothing, bedding and footwear.

At present, India has five consumer price indexes (CPIs), three of which are working-class specific. These are:

CPI for Industrial Workers (IW).

CPI for Agricultural Labourer (AL).

CPI for Rural Labourer (RL).

These three indexes are compiled by the [Labour Bureau in the Ministry of Labour and Employment](#).

CPIs AL and RL are used to fix minimum wages of agricultural labourers and rural unskilled employees.

The Labour Bureau is also expected to bring out the new series of the CPI- AL/RL, which currently has the base year of 1986-87 by August 2021.

The other two are [CPI-Urban and CPI Rural. These two indexes are compiled by the National Statistical Office \(NSO\) in the Ministry of Statistics and Programme Implementation.](#)

The combined rise in retail prices is captured by CPI Combined.

A committee set up by the [National Statistical Commission \(NSC\) in 2005](#) under the recommendation of [Dr C Rangarajan Commission](#), has suggested that CPI-Rural and CPI-Urban could be a substitute for CPI-AL/RL and CPI-IW, respectively.

Base Year for CPI is 2012.

Recently, the Ministry of Labour and Employment released the new series of Consumer Price Index for Industrial Worker (CPI-IW) with base year 2016.

The Monetary Policy Committee (MPC) uses CPI data to control inflation.

In April 2014, the Reserve Bank of India (RBI) had adopted the CPI as its key measure of inflation.

UPSC PYQ - 2015

Which of the following brings out the 'Consumer Price Index Number for Industrial Workers'?

- (a) The Reserve Bank of India
- (b) The Department of Economic Affairs
- (c) The Labour Bureau**
- (d) The Department of Personnel and Training

Answer

Ans: (c)

Exp:

Consumer Price Index Numbers for Industrial Workers (CPI-IW) is an index designed to measure a change, over time, in prices of a given basket of goods and services consumed by a defined population (i.e. Industrial Workers).

CPI-IW is compiled by Labour Bureau, an attached office under the Ministry of Labour and Employment.

The current series of CPI-IW (base 2016 = 100) is compiled for 88 selected centres in the country. The All-India Consumer Price Index for Industrial Workers is the weighted average of these 88 centre indices.

Parameter	CPI	WPI
Meaning	It reflects the average change in prices paid by consumers at the retail level.	It reflects changes in average wholesale prices for goods sold in bulk.
Published by	National Statistical Office (NSO), Ministry of Statistics and Programme Implementation & Labour Bureau	Office of Economic Advisor (Ministry of Commerce & Industry)
Base Year	2012	2011-2012
Frequency of Publishing	Monthly (14th of every month)	Primary articles, fuel, and power on a Weekly basis (Generally Thursdays) Overall index on monthly basis.

Wholesale Price Index & Consumer Price Index

	Wholesale Price Index (WPI)	Consumer Price Index (CPI)
Definition	Amounts the average change in prices of commodities at the wholesale level	Indicates the average change in the prices of commodities, at the retail level.
Published by	Office of Economic Advisor (Ministry of Commerce & Industry)	Central Statistics Office (Ministry of Statistics and Programme Implementation)
Measures of Prices	Goods only	Goods and Services both.
Measures of Inflation	In first stage of transaction	At final stage of transaction
Prices Paid by	Manufactures and wholesalers	Consumers
Used by	Only a few countries including India	157 countries
Type of items	Manufacturing inputs and intermediate goods like minerals, machinery basic metals, etc.	Education, communication, transportation, recreation, apparel, foods and beverages, housing and medical care.
Items covered	697 (Primary, fuel & power and manufactured products)	448 (Rural Basket) 460 (Urban Basket)

Source	The CPI's item weights are based on average household expenditures gathered from consumer expenditure surveys.	The WPI's item weights are based on production values.
Measured at	Final stage of transaction	First stage of transaction
Price paid by	Consumers	Wholesale dealers and manufacturers.
Number of items	448 items in rural and 460 items in urban	697 (including Primary, fuel & power and manufactured products)
Weightage of food items	The food group has a weight of 39.06%.	The food group (Food articles and manufactured food products) account for 24.4% of the total weight.

SIPRI Yearbook 2022

Context - The Stockholm International Peace Research Institute (SIPRI) launched the findings of SIPRI Yearbook 2022, which assesses the current state of armaments, disarmament and international security.

What is SIPRI?

The SIPRI is an **independent international institute dedicated to research into conflict, armaments, arms control and disarmament.**

Established in 1966 at Stockholm, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public

Report Findings

Nuclear warheads:

Global Scenario:

The nine nuclear-armed states—**the United States, Russia, the United Kingdom, France, China, India, Pakistan, Israel and the Democratic People's Republic of Korea (North Korea)**—continue to modernize their nuclear arsenals and although the total number of nuclear weapons declined slightly between January 2021 and January 2022, the number will probably increase in the next decade.

India

India had 160 nuclear warheads as of January 2022 and it appears to be expanding its nuclear arsenal.

Nuclear warheads are the explosive head of a missile or torpedo that uses nuclear energy.

India's nuclear stockpile increased from 156 in January 2021 to 160 in January 2022.

China

China had 350 nuclear warheads in January 2021 as well as January 2022.

India does not share official data on its nuclear arsenal.

Russia and the USA together possess over 90% of all nuclear weapons

Importers of Major Arms:

SIPRI identified 164 states as importers of major arms in 2016-20.

Country Wise:

The five largest arms importers were Saudi Arabia, India, Egypt, Australia and China, which together accounted for 36% of total arms imports.

Region wise:

The region that received the largest volume of major arms supplies in 2016-20 was Asia and Oceania, accounting for 42% of the global total, followed by the Middle East, which received 33%.

Suppliers of Major Arms:

The five largest suppliers in 2016-20 - the United States, Russia, France, Germany and China - accounted for 76% of the total volume of exports of major arms.

Several Agreements on Nuclear Diplomacy

Treaty on the Prohibition of Nuclear Weapons (TPNW):

After receiving the required 50 ratifications, the Treaty on the Prohibition of Nuclear Weapons (TPNW) entered into force in January 2021.

New START:

US-Russian arms control agreement New START was extended for five years.

Joint Comprehensive Plan of Action (JCPOA):

The start of talks on the USA rejoining, and Iran returning to compliance with the Iran nuclear deal, the Joint Comprehensive Plan of Action (JCPOA).

Treaty on the Non-Proliferation of Nuclear Weapons:

Nuclear-armed permanent members (P5) of the United Nations Security Council reaffirmed their commitment to complying with non-proliferation, disarmament, and arms control agreements and pledges as well as their obligations under the 1968 Treaty on the Non-Proliferation of Nuclear Weapons.

What are the Hindrances in Nuclear Diplomacy?

All P5 members continue to expand or modernize their nuclear arsenals and appear to be increasing the salience of nuclear weapons in their military strategies.

Russia has even made open threats about possible nuclear weapon use in the context of the war in Ukraine.

Bilateral Russia–USA strategic stability talks have stalled because of the war, and none of the other nuclear-armed states are pursuing arms control negotiations.

Poshan Abhiyan

About

POSHAN Abhiyaan (National Nutrition Mission) was launched by the government on **March 8, 2018**.

Aim:

The Abhiyaan targets to reduce **stunting, undernutrition, anemia (among young children, women and adolescent girls) and reduce low birth weight by 2%, 2%, 3% and 2% per annum respectively.**

The target of the mission is to **bring down stunting among children** in the **age group 0-6 years** from **38.4% to 25% by 2022.**

POSHAN Abhiyaan **aims to ensure service delivery and interventions by use of technology**, behavioural change through convergence and lays-down specific targets to be achieved across different monitoring parameters.

Under the Abhiyaan, **Swasth Bharat Preraks will be deployed one in each district for coordinating with district officials** and **enabling fast and efficient execution** of the Abhiyaan across the country. Swasth Bharat Preraks would function as catalyst for fast tracking the implementation of the Abhiyaan.

Need for Poshan Abhiyan

Malnutrition and Anaemia among Children:

According to the National Family Health Survey (NFHS)-5, India has unacceptably high levels of stunting, despite marginal improvement over the years.

In 2019-21, 35.5% of children below five years were stunted and 32.1% were underweight.

Global Nutrition Report-2021:

According to the **Global Nutrition Report (GNR, 2021)**, India has made **no progress on anaemia** and **childhood wasting**.

Over **17% of Indian children** under **5 years of age are affected** due to **childhood wasting**.

The data in NFHS 2019-21 shows the highest spike in anaemia was reported among children aged **6-59 months from 67.1% (NFHS-5) from 58.6% (NFHS-4, 2015-16)**.

Other Related Initiatives

Anaemia Mukt Bharat Abhiyan.

The National Food Security Act (NFS), 2013.

Pradhan Mantri Matru Vandana Yojana (PMMVY).

PM-POSHAN Scheme.

UPSC PYQ - 2017

Which of the following are the objectives of 'National Nutrition Mission'?

- 1- To create awareness relating to malnutrition among pregnant women and lactating mothers.
- 2- To reduce the incidence of anaemia among young children, adolescent girls and women.
- 3- To promote the consumption of millets, coarse cereals and unpolished rice.
- 4- To promote the consumption of poultry eggs.

Select the correct answer using the code given below:

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

Answer

Ans: (a)

Exp:

National Nutrition Mission (POSHAN Abhiyaan) is a **flagship programme of the Ministry of Women and Child Development, GoI**, which ensures convergence with various programmes like Anganwadi services, National Health Mission, Pradhan Mantri Matru Vandana Yojana, Swachh-Bharat Mission, etc.

The goals of National Nutrition Mission (NNM) are to achieve improvement in nutritional status of children from 0-6 years, adolescent girls, pregnant women and lactating mothers in a time bound manner during the next three years beginning 2017-18. Hence, 1 is correct.

NNM targets to reduce stunting, under-nutrition, anaemia (among young children, women and adolescent girls) and reduce low birth weight of babies. Hence, 2 is correct.

There is no such provision relating to consumption of millets, unpolished rice, coarse cereals and eggs under NNM. Hence, 3 and 4 are not correct. Therefore, option (a) is the correct answer.

Core Sectors Output

India's eight core sectors' output growth moderated to **12.7% in June, 2022 from 18.1% in May, 2022** with all sectors except crude oil registering an uptick in production.

What are Core Sectors?

Eight Core Sectors:

Coal, Crude Oil, Natural Gas, Refinery Products, Fertiliser, Steel, Cement, Electricity

About:

These comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).

The eight core sector industries in decreasing order of their weightage:

Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.

Index of Industrial Production:

IIP is an indicator that measures the changes in the volume of production of industrial products during a given period.

It is compiled and published monthly by the Central Statistical Organization (CSO), Ministry of Statistics and Programme Implementation.

It is a composite indicator that measures the growth rate of industry groups classified under:

Broad sectors:

Mining, Manufacturing, and Electricity.

Use-based sectors:

Basic Goods, Capital Goods, and Intermediate Goods.

Base Year for IIP is 2011-2012.

Significance of IIP:

It is used by government agencies including the Ministry of Finance, the Reserve Bank of India, etc, for policy-making purposes.

IIP remains extremely relevant for the **calculation of the quarterly and advance GDP (Gross Domestic Product) estimates**

In the 'Index of Eight Core Industries', which one of the following is given the highest weight?

- (a) Coal production
- (b) Electricity generation
- (c) Fertilizer production
- (d) Steel production

ANSWER

Ans: (b)

In 2015, Electricity was having the highest weightage in the index of 8 core industries.

The Eight Core Industries comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).

The current weight (April 2021), of eight core industries is given below:

Petroleum Refinery production (28.04%), Electricity (19.85%), Steel (17.92%), Coal production (10.33%), Crude Oil (8.98%), Natural Gas production (6.88%), Cement production (5.37%), Fertilizer production (2.63%).

Eight Core Industries (Weightage)



Coal (10.33%)



Crude Oil (8.98%)



Natural Gas (6.88%)



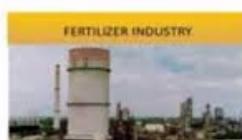
Refinery (28.04%)



Steel (17.92%)



Cement (5.37%)



Fertilizer (2.63%)



Electricity (19.85%)

Rainbow of Hope: LGBTQIA+

In recent years, several countries, including **India, have legally recognized third sex and homosexuals as equal citizens**, after a long struggle of several different movements and protests around the world.

The **Preamble of the Constitution** recognises its **citizens impartially as "We the people of India"** and ensures **justice - social, economic, and political**.

In September 2018, in the **review of Section 377** of the **Indian Penal Code** **the Supreme Court gave the judgment to decriminalize adult consensual same-sex marriages**.

While it was a big achievement, it does not mean that LGBTQIA+ people in India are absolutely free or treated equally to their fellow citizens.

What does LGBTQIA + Stands For?

Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual +

What is the History of Recognition of LGBTQIA+ In India?

In 1861, Britishers considered sexual activities "against the order of nature" including all homosexual activities were criminalized under section 377 of the Indian Penal Code.

In 1977, Shakuntala Devi published the first study of homosexuality in India, called "The World of Homosexuals".

In 1994, they were legally granted Voting rights as a third sex.

In 2014, the Supreme Court of India ruled that transgender people should be treated as the third category of gender.

In 2017, the Supreme Court gave the country's LGBTQ community the freedom to safely express their sexual orientation.

On **6 September 2018**, the Supreme Court struck down the part of Section 377 which criminalized consensual homosexual activities.

In **2019**, Parliament Transgender Persons (Protection of Rights Act) with an objective to provide for protection of rights of transgender people, their welfare, and other related matters.

Which Cases have Helped the LGBTQIA+ Community Get Their Rights Acknowledged?

Navtej Singh Johar Vs. Union of India: The SC held that Article 14 of the Constitution guarantees equality before law and this applies to all classes of citizens. It restores 'inclusiveness' of LGBTQ Community and homosexuality was decriminalised.

Shafin Jahan Vs. Asokan K.M. and Others (2018): In this case, the SC observed that **choice of a partner is a person's fundamental right, and it can be a same-sex partner.**

National Legal Services Authority Vs. Union of India (2014): The SC observed that "**recognition of transgenders as a third gender is not a social or medical issue, but a human rights issue**".

What are the Problems Faced by LGBTQIA+ Communities in India?

Marginalisation: LGBTQIA+ individuals may experience multiple forms of marginalisation—such as racism, sexism, poverty or other factors—alongside homophobia or transphobia that negatively impact their mental health.

Often, such marginalisation leaves LGBTQIA+ people without access to the basic services such as medical care, justice and legal services, and education.

Impact of Family Reactions on LGBT Children: Rejection and serious negative reactions kept many LGBTQIA+ youngsters from telling their parents about their feelings.

Lack of family support can prove to be a big blow to the mental and physical health of LGBTQIA+ people.

Unheard Rural Voices: The voices of urban LGBTQIA+ people are heard through several online and real-world platforms.

Whereas rural LGBTQIA+ people often suppress their feelings due to a lack of exposure, comfort and internet connectivity in their area.

Homelessness: Most of the homeless LGBTQIA+ youth are thrown out of their homes for being queer, or they ran away to escape an abusive situation.

They miss out on education and social support during critical formative years.

And without any economic support, they often engage in drug use and risky sexual behaviors.

Lack of Employment Opportunities: Difficulties in obtaining accurate gender identity documents, including school records, adversely affect employment prospects.

Socially Unrecognised: School uniforms, dress code and appearance, access points for travel (including ticket booking forms, security screening and toilets) are often gendered.

Frequently, LGBTQIA+ individuals are forced to **negotiate their gender identity in public** while on public transportation.

What Should be the Way Forward?

Changing Social Attitude Toward LGBTQIA+ People: As TV and movies are accessible to rural populations where social media has not yet penetrated, they are likely to be the best tools for redefining family roles and attitudes through programs and stories that educate and enlighten, as well as relay LGBTQIA+ experiences in authentic and diverse ways

Movies like Badhaai Do, Shubh Mangal Zyada Saavdhan, Aligarh can play a big role in changing the negative attitude of society towards LGBTQIA+ Community.

From Special Treatment to Equal Treatment: LGBTQIA + people don't seem to be aliens, they're not sick and their sexual preference is innate and being homosexual is a normal phenomenon and not a disease.

They deserve to be **treated equally, not specially** and once they are included in Indian society as equals, they will get fully blended in collective development.

Towards Better Parenting: Fundamental responsibility of any parent to accept their children's identity.

It is by accepting the child that they will transform society into one that values diversity and accepts the uniqueness of each individual.

Awaring and Empowering LGBTQIA+ Youth: An open and accessible forum is needed so they feel recognized and comfortable sharing their feelings.

Platforms like **Gaysi and Gaylaxy** have helped carve out spaces for LGBT people to interact, share and collaborate.

NITI Aayog's State Health Index

Why in News?

The NITI Aayog has shared the report - Healthy States Progressive India Report on the Ranks of States and Union Territories - with the Health Ministry.



STATE HEALTH INDEX



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Institute for IAS Examination

- ❖ It was launched by the NITI Aayog in 2017 to measure the performance of states and UTs on a weighted composite score incorporating 24 health performance indicators clubbed under three domains.
- ❖ It brings out the index (annually) in collaboration with the Union Health Ministry and World Bank.



Heart Q Share



 **VAJIRAM & RAVI**
Institute for IAS Examination

- ❖ The index encourages healthy competition and cross-learning among States and UTs and nudges states/UTs towards building robust health systems and improving service delivery through their policymaking and resource allocation.
- ❖ This index is an example of both competitive and cooperative federalism.



 **VAJIRAM & RAVI**
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Highlights

OF THE 5TH EDITION OF THE STATE HEALTH INDEX >>>



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OVERALL PERFORMANCE AMONG THE 19 LARGER STATES

- ❖ Top performers: Kerala, Tamil Nadu, and Telangana have secured the top three positions
- ❖ Worst performer: Bihar, UP and MP occupy the bottom three positions, ranking 19th, 18th, and 17th, respectively.
- ❖ Incremental performance from 2019-20 to 2020-21: Rajasthan, Uttarakhand, and Odisha have emerged as the top three performers among the larger states.



IN THE CATEGORY OF SMALLER STATES:

- ❖ Tripura has demonstrated the best overall performance, followed by Sikkim and Goa.
- ❖ Arunachal Pradesh, Nagaland and Manipur occupy the bottom three positions.



AMONG THE UTS

Lakshadweep has secured the top position in terms of overall performance, while Delhi has been placed at the bottom.



Betelgeuse

About Betelgeuse:

Betelgeuse is a red **supergiant star** that forms the left shoulder of the **constellation of Orion**.

It is **one of the brightest stars in the night sky** and one of the largest stars ever discovered.

The star is approximately 650 light-years from Earth.

It is one of the largest known stars, measuring more than **700 million miles (1.2 billion kilometres) in diameter, 764 times as large as the Sun**.

It is known for its **periodic dimming and brightening up**.

It is a red supergiant star (over 20 times bigger than the Sun) in the constellation Orion.

Along with the dimming, the **star's shape has been changing as well**, as per recent photographs of the star taken using the VISIR instrument on the VLT.

Instead of appearing round, the star now appears to be **“squashed into an ova”**



Current affairs

What is UNSC?

About:

The Security Council was established by the **UN Charter in 1945**. It is one of the **six principal organs of the United Nations**.

The other 5 organs of the United Nations are—

General Assembly (UNGA),
Trusteeship Council
Economic and Social Council
International Court of Justice
Secretariat.

The UNSC, with a mandate to maintain **international peace and security**, is the **centrepiece of global multilateralism**.

The Secretary-General is appointed by the General Assembly, on the **recommendation of the Security Council**.

The UNSC and UNGA jointly elect judges to the **International Court of Justice**.

Composition:

The UNSC is composed of **15 members**: 5 permanent and 10 non-permanent.

Five permanent members: China, France, the Russian Federation, the United Kingdom, and the United States.

Ten non-permanent members: **Elected for two-year terms by the General Assembly**.

Five from African and Asian States,

One from Eastern European States,

Two from Latin American States,

Two from Western European and other States.

India's Membership:

India has served **seven times in the UN Security Council** as a non-permanent member and in January 2021, India entered the UNSC for the eighth time.

India has been advocating a permanent seat in UNSC.

Voting Powers:

Each member of the Security Council has one vote. Decisions of the Security Council on matters are made by an affirmative vote of nine members including the concurring votes of the permanent members.

A "No" vote from one of the five permanent members blocks the passage of the resolution.

Responsibilities:

The UNSC brokers peace by helping parties reach an agreement through mediation, appointing special envoys, dispatching a UN Mission or requesting the UN Secretary-General to settle the dispute.

It can also vote to extend, amend or end mission mandates.

The Security Council oversees the work of UN peace operations through periodic reports from the Secretary-General and council sessions. It alone can make decisions regarding these operations, which Member States are obligated to enforce.

What are the Issues with UNSC?

The Loss of Relevance:

The council has been criticised for losing relevance and credibility.

According to India's External Affairs Minister, the UNSC has narrow leadership and a need for a new approach, hence a call to push for the "refresh button".

Lack of Multilateralism:

The council's lack of multilateralism has also been criticised in the wake of the Syrian war crisis and the ongoing Covid-19 pandemic.

Less Representative:

It was argued by several speakers that the UN Security Council is less effective because it is less representative, the most pertinent absence being that of Africa, a continent of 54 countries.

Misuse of Veto Power:

Veto power has been always criticised by many experts as well as by most States calling it a "self-chosen club of the privileged" and non-democratic and not allowing the Council to make necessary decisions whenever it displeases any one of the P-5.

Taking the current world order as an example, the P5 members: United States, Russia, and China are three poles on the periphery of the globe having several geopolitical issues revolving around them (Taiwan Issue and Russia-Ukraine War).

The Security Council of UN consists of 5 permanent members, and the remaining 10 members are elected by the General Assembly for a term of

- (a) 1 year
- (b) 2 years
- (c) 3 years
- (d) 5 years

Answer

Ans: (b)

Group of Four (G-4) Countries

GS Paper - 2

Important International Institutions

Global Groupings

Context - On the sidelines of the 76th session of the UN General Assembly, the G-4 countries highlight 'urgent need' for reform in U.N. Security Council (UNSC).

Who are the Group of Four(G-4) Countries?

The G4 is a grouping of Brazil, Germany, India and Japan which are aspiring to become permanent members of the UNSC.

The G4 countries are supporting each other's bids for permanent membership of the UNSC.

The G4 nations traditionally meet on the sidelines of the annual high-level UN General Assembly session.

What are the Key Highlights of the G-4 Meeting?

They felt that the UN decision-making bodies needed to be urgently reformed as global issues were increasingly complex and interconnected.

They reiterated their support for African countries being represented in a permanent and non-permanent capacity.

The Ministers agreed on the need for enhanced role and presence of developing countries and of major contributors to the United Nations to enhance the capacity of the Council to respond effectively to the complex and evolving challenges on questions of international peace and security

Why is there a Need for UNSC Reforms?

UN represents a larger world and the irony is that it has only 5 permanent members in its important body.

At the time of the formation of the UNSC, big powers were given privileges to make them part of the council.

The regions like far East Asia, South America, and Africa have no representation in the permanent membership of the council.

Why is India Demanding the Permanent Membership of the UNSC?

Overview:

For the first 40 years of the UN Security Council's formation, India never asked for permanent membership.

Even in 1993 when India submitted its written proposal to the UN in response to the General Assembly resolution related to reforms, it did not specifically state that it wants permanent membership for itself.

It is only from the last few years that India has started asking for permanent membership in the council.

India deserves a permanent place in the council considering the size of its economy, population and the fact that it is the largest democracy in the world.

India has become a major player not only in Asia but also in the world.

The Security Council would be a more representative body if India would be there in it as a permanent member.

Need:

By having veto power, one can enjoy enormous powers.

Since 2009, India was trying to designate Masood Azhar as a global terrorist. One veto power of China kept delaying it.

India will be able to work better for its interests.

There was a time when the USSR actually started boycotting the UNSC and that was the time when US managed to get the resolution passed for the Korean War. From that time onwards USSR realized that it doesn't make sense to boycott the UN. It needs to keep veto if at all resolution is against them.

India's presence as a permanent member will be an acknowledgement of its rise as a global power, ready to play a key role in the council's objectives of international peace and security.

India will be able to enjoy the 'prestige' associated with the permanent membership of the council.

What is the United Nations Security Council (UNSC)?

Established by the United Nations charter in 1945, the Security Council has primary responsibility of maintaining international peace and security.

The Security Council has 15 members.

There are five permanent members: the United States, the Russian Federation, France, China and the United Kingdom.

The non-permanent members of the Security Council are elected for a term of two years.

Each member of the Security Council has one vote. Decisions of the Security Council on matters are made by an affirmative vote of nine members including the concurring votes of the permanent members. A "No" vote from one of the five permanent members blocks the passage of the resolution



India-US: The High Tech Boost

In News

India and the United States elevated their strategic partnership with the launch of an initiative on Critical and Emerging Technology or iCET.

Initiative on Critical and Emerging Technologies (iCET)

About:

The iCET involves collaboration in a range of areas including

Quantum computing,

Semiconductors,

5G and 6G wireless infrastructure, and

Civilian space projects such as lunar exploration.

Aim:

iCET aims to position the two countries as trusted technology partners by building technology value chains and supporting the co-development and co-production of items.

It also aims to address regulatory restrictions, export controls and mobility barriers through a standing mechanism

Defence:

On the defence front, iCET aims to expand India-US cooperation in fields like artificial intelligence and military equipment.

Industrial cooperation:

The iCET announced a new bilateral defence industrial cooperation roadmap that will be intended to accelerate defence technology cooperation.

Fighter jet engine production in India:

The USA under this has also agreed to produce a fighter jet engine in India for the indigenously manufactured Light Combat Aircraft.

Significance

Depth to the relationship:

If implemented with speed and purpose, the bilateral Initiative on Critical and Emerging Technologies (iCET) could lend a new strategic depth and breadth to the expanding engagement between India and the United States.

Against the rising and assertive China:

Lending urgency to the iCET is the growing convergence of Indian and US interests in managing the security, economic, and technological challenges presented by a rising and assertive China.

Reducing dependence on Russia:

India is also looking to reduce its over-dependence on Russian weapons and military technology and to produce more weapons at home in partnership with western countries.

India US relations

GS - 2, India and its Foreign relations

India- US Relations:

About:

India-US bilateral relations have developed into a "global strategic partnership", based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.

In 2015, both the countries issued a Delhi Declaration of Friendship and adopted a Joint Strategic Vision for Asia-Pacific and the Indian Ocean Region.

Energy and Climate Change:

As a priority initiative under the PACE (Partnership to Advance Clean Energy), the US Department of Energy (DOE) and the Government of India have established the Joint Clean Energy Research and Development Centre (JCERDC) designed to promote clean energy innovations by teams of scientists from India and the United States.

India-US Clean Energy Agenda 2030 Partnership was launched at the Leaders climate summit 2021.

Defence Cooperation:

Defence relationship has emerged as a major pillar of India-US strategic partnership with the signing of 'New Framework for India-US Defence Relations' in 2005 which was further updated for 10 years in 2015.

India and US inked important defence pacts in the last few years and also formalised the four nation alliance of QUAD (India, US, Japan and Australia).

The alliance is seen as an important counter to China in the Indo-Pacific

The Malabar exercise in November 2020 portrayed a high point in Indo-US strategic ties, it was the first time in 13 years that all four countries of QUAD came together sending a strong message to China.

India now has access to American bases from Djibouti in Africa to Guam in the Pacific. It can also access advanced communication technology used in US defence.

India and US have four foundational defence agreements:

Basic Exchange and Cooperation Agreement for Geospatial Intelligence (BECA).

General Security of Military Information Agreement (GSOMIA).

Logistics Exchange Memorandum of Agreement (LEMOA).

Communication Compatibility and Security Agreement (COMCASA).

India-US Counter-Terrorism Cooperation Initiative was signed in 2010 to expand collaboration on counter-terrorism, information sharing and capacity building.

A tri-services exercise—Tiger Triumph—was conducted in November 2019.

Bilateral and regional exercises include: Yudh Abhyas (Army), Vajra Prahar (Special Forces), RIMPAC, Red Flag.

Trade:

The US is India's second largest trading partner and a major destination for India's exports of goods and services.

The US replaced Mauritius as the second largest source of foreign direct investment into India during 2020-21.

The previous US government ended India's special trade status (GSP withdrawal) and also imposed several bans, India also retaliated with bans on 28 US products.

Current US government has allowed all the bans by the previous government to expire

Science & Technology:

Indian Space Research Organisation and National Aeronautics and Space Administration (NASA) are working together to realise a joint microwave remote sensing satellite for Earth observation, named NASA-ISRO Synthetic Aperture Radar (NISAR).

Indian Diaspora:

There is a growing presence of Indian diaspora in all spheres in the US. For example the current Vice-President (Kamala Harris) of the US has a strong Indian connection

India Canada relations

Context :- Recently, the 6th India-Canada Ministerial Dialogue on Trade and Investment (MDTI) was held in Ottawa, Canada.

Major Outcomes of the MDTI

Support for India as G20 Chair:

The Canadian Minister expressed her support for India as the G20 Chair and its priorities in the G20 Trade and Investment Working Group.

She expressed her intention to participate in the upcoming G-20 Trade and Investment Ministerial meeting in India scheduled for August 2023.

Enhanced Cooperation:

The Ministers highlighted the importance of cooperation in sectors such as clean technologies for infrastructure development, critical minerals, electric vehicles and batteries, renewable energy/hydrogen, and artificial intelligence (AI).

Critical Mineral Supply Chain Resiliency:

The Ministers emphasised the importance of government-to-government coordination to promote critical mineral supply chain resiliency.

They committed to an annual dialogue at the official level during the Prospectors and Developers Association Conference (PDAC) in Toronto to discuss mutual interests.

Canada-India CEO Forum:

The Ministers agreed to rework and relaunch the Canada-India CEO Forum with renewed focus and priorities.

The CEO Forum would serve as a platform to enhance business-to-business engagement and could be announced at an agreed-upon early date.

Areas of Cooperation Between India and Canada

About:

India established diplomatic relations with Canada in 1947. India and Canada have a long-standing bilateral relationship based on shared democratic values, the multi-cultural, multi-ethnic and multi religious nature of two societies and strong people-to-people contacts.

Political:

India and Canada share commonalities in Parliamentary structure and procedures.

In India, Canada is represented by the High Commission of Canada in New Delhi.

Canada also has Consulates General in Bengaluru, Chandigarh and Mumbai, as well as trade offices in Ahmedabad, Chennai, Hyderabad and Kolkata.

Commerce:

India-Canada bilateral trade in goods reached approximately USD 8.2 billion in 2022, showing a 25% growth compared to 2021.

The services sector was emphasised as a significant contributor to the bilateral relationship, with bilateral services trade valued at around USD 6.6 billion in 2022.

Canadian Pension Funds have cumulatively invested around USD 55 billion in India and are increasingly viewing India as a favourable destination for investments.

More than 600 Canadian companies have a presence in India and more than 1,000 companies are actively pursuing business in the Indian market.

Indian companies in Canada are active in the field such as Information Technology, software, steel, natural resources and banking sectors.

The India-Canada Free Trade Agreement is also under negotiation.

An Early Progress Trade Agreement (EPTA) is expected to be signed in 2023 between India and Canada.

The agreement will cover a wide range of areas including goods, services, investment, rules of origin, sanitary and phytosanitary measures, technical barriers to trade, and dispute settlement.

Science and Technology:

India's Atomic Energy Regulatory Board (AERB) signed an Arrangement with the Canadian Nuclear Safety Commission (CNSC) on September 16, 2015 to exchange experiences in nuclear safety and regulatory issues.

Indo-Canadian S&T cooperation has been primarily focussed on promoting Industrial R&D which has potential for application through development of new IP, processes, prototypes or products.

Canada was a partner country for the Technology Summit held in New Delhi in November 2017.

The Department of Earth Science and Polar Canada have started a programme for exchange of knowledge and scientific research on Cold Climate (Arctic) Studies.

Under the "Mission Innovation" program, India is collaborating with Canada in various activities in the areas of Sustainable Biofuels (IC4).

ANTRIX, the Commercial arm of ISRO, has launched several nanosatellites from Canada.

Private Paid Group Notes For GS, [6/14/2023 7:09 AM]

ISRO in its 100th Satellite PSLV launched on January 12, 2018, also flew Canadian first LEO satellite, from Indian spaceport Sriharikota, Andhra Pradesh.

Education and Culture:

The Shastri Indo-Canadian Institute (SICI) is a unique bi-national organisation fostering, since 1968, education and cultural cooperation and collaboration between India and

Canada.

Canada was the Country of Focus at the 48th International Film Festival of India held in Goa in November 2017.

Canada Post and India Post joined hands to issue a commemorative stamp on Diwali in 2017.

Canada Post issued Diwali Stamps again in 2020 and 2021.

In October 2020, Canada announced the voluntary repatriation of the ancient Annapurna statue which was illegally acquired by a Canadian collector and had been kept at University of Regina.

The statue has since been handed over to India and has been placed inside Kashi Vishwanath temple in Varanasi in November 2021.

Diabetes

What do we Need to know about Diabetes?

About: Diabetes is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas **does not produce enough insulin** (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin, it produces.

Types of Diabetes:

Type 1 Diabetes:

It is also known as **juvenile diabetes** (as it mostly affects children of age 14-16 years), this type occurs when the body fails to produce sufficient insulin.

It is predominantly diagnosed in children and adolescents. Although the prevalence is less, it is much more severe than type 2.

Type 2 Diabetes:

It affects the way the body uses insulin. While the body still makes insulin.

Type 2 diabetes can occur at any age, even during childhood. However, this type of diabetes occurs most often in middle-aged and older people.

Gestational Diabetes: This type occurs in women during pregnancy when the body sometimes becomes less sensitive to insulin. Gestational diabetes does not occur in all women and usually resolves after giving birth.

Impacts of Diabetes: It affects the five major organs namely, Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina).

Factors Responsible: Factors that lead to increase in diabetes are an unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc.

How Rare is Type-1 Diabetes?

Out of 10 lakh children and adolescents living with type 1 diabetes in the world, India holds the highest numbers.

Out of 2.5 lakh people living with type 1 diabetes in India, 90,000 to 1 lakh are under the age of 14 years.

Only 2% of all hospital cases of diabetes in the country are type 1 — but which is being diagnosed more frequently.

What Factors Exacerbate the Condition?

Genetic Factors: It plays a role in determining whether a person will get type-1 diabetes. The risk of disease in a child is:

3% when the mother has it

5% when the father has it

8% when a sibling has it.

Presence of Certain Genes: It is also strongly associated with the disease. For example, the prevalence of genes called DR3-DQ2 and DR4-DQ8 is 30-40% in patients with type 1 diabetes as compared to 2.4% in the general population.

DR3- DQ2 and DR4-DQ8 means the patient is permissive for celiac disease and is capable of developing or having the disease.

What are the Treatments?

Glucose monitoring: Continuous glucose monitoring devices can help monitor the blood glucose levels throughout 24 hours with the help of a sensor.

Artificial pancreas: It can automatically deliver insulin when required.

What are Related Initiatives?

National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS):

In order to prevent and control major NCDs, this initiative was launched by India in 2010 with focus on strengthening infrastructure, human resource development, health promotion, early diagnosis, management and referral.

World Diabetes Day:

It is observed on 14th November every year. The 2022 campaign will focus on access to diabetes education. access to diabetes education.

Global Diabetes Compact:

WHO launched a Global Diabetes Compact to better fight the disease while marking the centenary of the discovery of insulin

Hypertension

Hypertension is when blood pressure is too high.

Prevalence:

Southern States have a higher prevalence of hypertension than the national average.

Kerala (32.8% men and 30.9% women) has the highest number followed by Telangana.

21.3% of women and 24% of men aged above 15 have hypertension in the country

India Hypertension Control Initiative (IHCI)

What is the IHCI?

The programme was launched in November 2017.

In the first year, IHCI covered 26 districts across five States — Punjab, Kerala, Madhya Pradesh, Telangana, and Maharashtra.

By December 2020, IHCI was expanded to 52 districts across ten States — Andhra Pradesh, Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Telangana and West Bengal.

The Health Ministry, the Indian Council of Medical Research, State Governments, and WHO-India began a five-year initiative to monitor and treat hypertension.

India has committed to a "25 by 25" goal.

The goal aims to reduce premature mortality due to Non-Communicable Diseases (NCDs) by 25% by 2025.

One of the nine voluntary targets includes reducing the prevalence of high blood pressure by 25% by 2025.

Current affairs



Ramgarh Vishdhari Tiger Reserve:

Location: It lies in the southeastern part of Rajasthan in Bundi district.

It is in continuation with the buffer area of Ranthambore tiger reserve on the North-eastern side and Mukundara Hills tiger reserve on the southern side.

It was notified as a tiger reserve on May 16, 2022.

River: Mez, a tributary of the Chambal River, passes through the tiger reserve.

Vegetation: Dry Deciduous Forest

Topography: It varies from gentle slopes to steep rocky cliffs, from the flat-of hills of VindhyaS to the conical hillocks and sharp ridges of the Aravallis.

Flora:

The habitat is dominated by Dhok (Anogeissus pendula) trees.

Other important flora includeS Khair (Acacia catechu), Ronj (Acacia Leucophloea), Amaltas (Cassia fistula), Gurjan (Lannea coromodelica), Saler (Boswellia serrata) etc.

Fauna:

The area is dominated by Leopards and Sloth bears.

Other important fauna includes Jungle cat, Golden jackal, Hyaena, Crested Porcupine, Indian Hedgehog, Rhesus macaque, hanuman langur etc.

It is also the natural habitat for the Indian Star tortoise.

LAW COMISSION OF INDIA

Law Commission of India

Context :- Retired **High Court Chief Justice Rituraj Awasthi** has been appointed as the chairperson of the **22nd law commission of India** which was constituted in 2020.

Law Commission of India

About:

The Law Commission of India is a **non-statutory body** constituted by the **Government of India** from time to time.

The first Law Commission of independent India was established in **1955** for a **three-year term**.

The **first Law Commission** was established during the **British Raj era in 1834** by the **Charter Act of 1833** and was chaired by Lord Macaulay.

Objectives:

It works as an **advisory body** to the Ministry of Law and Justice.

The Law Commission undertakes research in law and review of existing laws in India for making reforms therein and enacting new legislations on a reference made to it by the Central Government or suo-motu.

Composition:

Apart from having a full-time chairperson, the commission will have four full-time members, including a member-secretary.

Law and Legislative Secretaries in the Law Ministry will be the ex-officio members of the commission.

It will also have not more than five part-time members.

A retired Supreme Court judge or Chief Justice of a High Court will head the Commission.

Important Recommendations of the Commission

The Law Commission in its **262nd Report** recommended **abolition of the death penalty** for all crimes except **terrorism-related offences and waging war against the state**.

Its report on **electoral reforms (1999)** had suggested **simultaneous Lok Sabha and state assembly elections** to improve governance and stability.

The Criminal Procedure (Identification) Act, 2022 which replace the Identification of Prisoners Act, 1920 was also proposed by the Law Commission of India.

The 21st Law commission in its recommendation in 2018 said that Uniform Civil Code (UCC) is “neither necessary nor desirable at this stage”.

Now, the center has requested the 22nd Law Commission of India to undertake an examination of various issues relating to the same.

Uniform Civil Code

GS Paper - 2

Fundamental Rights

Directive Principles of State Policy

Issues Related to Women

About:

UCC is one that would provide for **one law for the entire country**, applicable to all religious communities in their personal matters such as marriage, divorce, inheritance, adoption etc.

Article 44 of the Constitution lays down that the **state shall endeavour to secure a UCC for the citizens** throughout the territory of India.

Article 44 is one of the Directive Principles of State Policy (DPSP).

DPSP as defined in **Article 37**, are **not justiciable (not enforceable by any court) but the principles laid down therein are fundamental in governance.**

Status of Uniform Codes in India:

Indian laws do follow a uniform code in most civil matters such as Indian Contract Act 1872, Civil Procedure Code, Transfer of Property Act 1882, Partnership Act 1932, Evidence Act, 1872 etc.

States, however, have made hundreds of amendments and, therefore, in certain matters, there is diversity even under these secular civil laws.

Background:

The origin of the UCC dates back to **colonial India** when the British government **submitted its report in 1835** stressing the **need for uniformity** in the codification of Indian law relating to crimes, evidence, and contracts, specifically recommending that **personal laws of Hindus and Muslims be kept outside such codification.**

Increase in legislation dealing with personal issues in the far end of British rule forced the government to form the **B N Rau Committee to codify Hindu law in 1941.**

In order to bring uniformity, the courts have often said in their judgements that the government should move towards a UCC.

The judgement in the **Shah Bano case** (1985) is well known.

Another case was the **Sarla Mudgal Case** (1995), which dealt with issue of **bigamy and conflict between the personal laws existing on matters of marriage.**

Implications of Uniform Civil Code on Personal Laws:-

Simplification of Laws:

The code will **simplify the complex laws around marriage ceremonies, inheritance, succession, adoptions making them one for all.** The same civil law will then be applicable to all citizens irrespective of their faith

Adhering to Ideal of Secularism:

Secularism is the objective enshrined in the Preamble, a secular republic needs a common law for all citizens rather than differentiated rules based on religious practices.

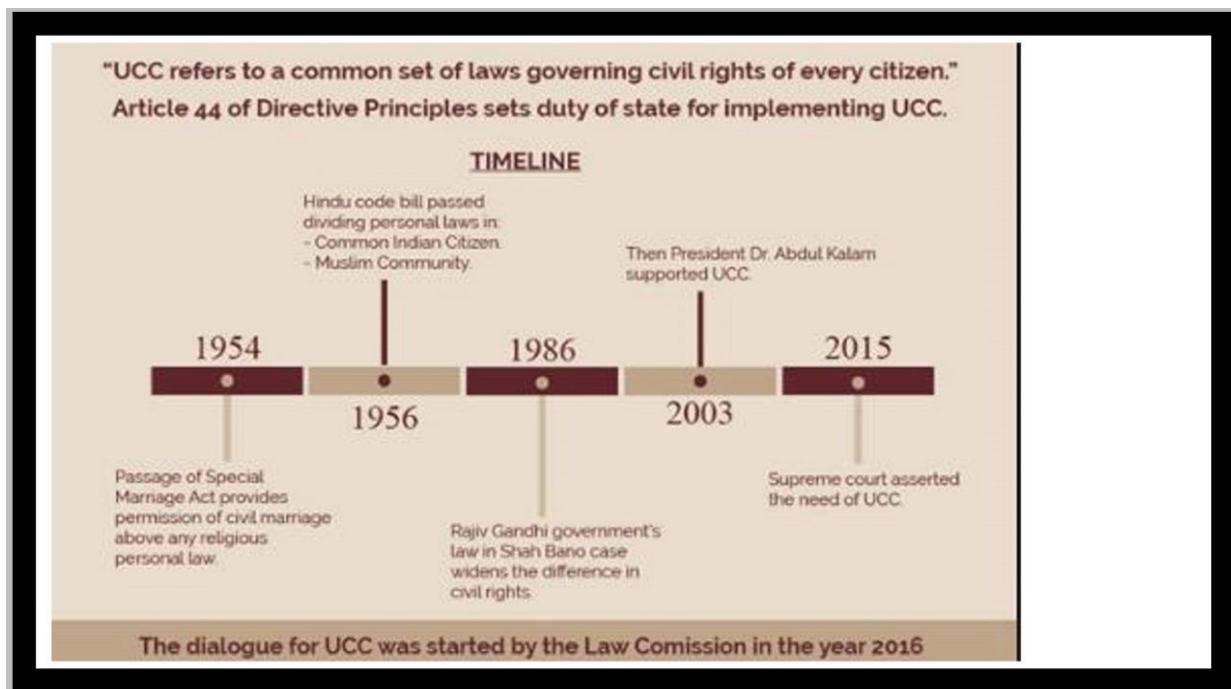
Gender Justice:

If a UCC is enacted, all personal laws will cease to exist. It will do away with gender biases in existing laws.

Challenge

Constitutional Hurdle:

Article 25 of Indian constitution, that seeks to preserve the freedom to practise and propagate any religion gets into conflict with the concepts of equality enshrined under Article 14 of Indian Constitution.



Particularly Vulnerable Tribal Groups (PVTGs):

GS Paper - 2

Issues Related to SCs & STs

Government Policies & Interventions

Health

Creation of Primitive Tribal Groups (PTGs): In 1973, the Dhebar Commission created Primitive Tribal Groups (PTGs) as a separate category, which are less developed among

the tribal groups.

In 2006, the Government of India renamed the PTGs as PVTGs.

In 1975, the Government of India initiated to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups. In 1993 an additional 23 groups were added to the category, making it a total of 75 PVTGs out of 705 Scheduled Tribes.

Among the 75 listed PVTG's the highest number are found in Odisha.

Characteristics of PVTGs: The Government classifies PVTGs on their:

Stagnant or declining population,

Low levels of literacy,

Absence of written language,

Pre-agricultural stage of economy, such as hunting, food gathering, shifting cultivation and terrace cultivation

Consider the following statements about Particularly Vulnerable Tribal Groups (PVTGs) in India:

PVTGs reside in 18 States and one Union Territory.

A stagnant or declining population is one of the criteria for determining PVTG status.

There are 95 PVTGs officially notified in the country so far.

Irular and Konda Reddi tribes are included in the list of PVTGs.

Which of the statements given above are correct?

- (a) 1, 2 and 3

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

Answer 

Ans: (c)

75 tribal groups have been categorized by Ministry of Home Affairs as Particularly Vulnerable Tribal Groups (PVTGs). PVTGs reside in 18 States and the Union Territory of Andaman and Nicobar Islands. Hence, statement 1 is correct and statement 3 is not correct.

The criteria followed for determination of PVTGs are a pre-agriculture level of technology, a stagnant or declining population, extremely low literacy, and a subsistence level of the economy. Hence, statement 2 is correct.

Irular (Tamil Nadu) and Konda Reddi (Andhra Pradesh) tribes are included in the list of PVTGs. Hence, statement 4 is correct

Pradhan Mantri PVTG Development Mission: (PM PVTG)

The mission will be launched as part of 'Reaching The Last Mile', one of the seven Saptarishi priorities enlisted in this year's Budget.

The mission will saturate the particularly vulnerable tribal groups with safe housing, clean drinking water, education, nutrition, road and telecom connection and livelihood.

A Budget of Rs 15,000 crore will be dedicated to this mission in the next three years.

The scheme will benefit 3.5 lakh tribals.

Saptarishi priorities (seven priorities) enlisted in the 2023-24 budget:

Inclusive Development

Reaching the Last Mile

Infrastructure and Investment

Unleashing the Potential

Green Growth

Youth Power

Financial Sector

Who are PVTG (Particularly Vulnerable Tribal Groups) ?

PVTGs are more vulnerable among the tribal groups who are in need of greater support and development.

Out of the 705 Scheduled Tribes in India, 75 have been identified as PVTGs and are spread across 17 states and one Union Territory.

Government of India follows the following criteria for identification of PVTGs

Pre-agricultural level of technology

Low level of literacy

Economic backwardness

A declining or stagnant population.

In 1975, the Government of India initiated to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups.

An additional 23 groups were added to the category in 1993.

Some Examples: Cholanaikayan (Kerala), Kathodi (Gujarat), Jarawas (Andaman & Nicobar Islands), Koraga (Karnataka)

Finance commission

15th Finance Commission

The Finance Commission (FC) is a constitutional body, that determines the method and formula for distributing the tax proceeds between the Centre and states, and among the states as per the constitutional arrangement and present requirements.

Under Article 280 of the Constitution, the President of India is required to constitute a Finance Commission at an interval of five years or earlier.

The 15th Finance Commission was constituted by the President of India in November 2017, under the chairmanship of NK Singh. Its recommendations will cover a period of five years from the year 2021-22 to 2025-26.

The next Finance Commission will have a tough task

Context :- The government will appoint a Finance Commission in the next few months to determine how much of the Centre's tax revenue should be given away to States (the vertical share) and how to distribute that among States (the horizontal sharing formula).

In the pre-reform period, the Finance Commission recommendations were not that critical because the Centre had other ways to compensate States, or indeed to play favourites, through plan financing and public sector undertaking (PSU) investments. Post-reforms, fresh PSU investments have thinned out and the Planning Commission was abolished in 2014 with the result that the Finance Commission remains virtually the sole architect of India's fiscal federalism. The stakes are, therefore, much larger.

Issue will be about horizontal distribution

Finance Commission		
The Finance Commission is the balancing wheel of fiscal federalism in India ~ Indian Constitution		
Article 280 Indian Constitution Part XIII Constitutes FC as a Quasi-Judicial Body	Constituted by President of India quinquennially (or earlier)	Members Chairman + 4 members (including an independent member) Authority to decide qualifications – Parliament Term of office specified by the President Re-appointment - Eligible
Makes Recommendations to President about Distribution of net tax proceeds between Central and States Principles for grants-in-aid to the states by the Central Government Evaluates the rise in the Consolidated Fund of a state to affect the same Other financial matters referred to it by President	Powers of a Civil Court As per Code of Civil Procedure 1908	
<small>*Recommendations of the FC are only advisory and not binding on the Government</small>		
Fifth FC (1950-57) Chairman - KC Neogy	Second FC (1957-62) Chairman - K Santhanam	Current/Fifteenth FC (2021-2026) Chairman - NK Singh
<small>* Constituted by Governor every 5th year (Article 243) Reviews the financial position of Panchayats and Municipalities</small>		



Currently, the Centre gives away 41% of its tax pool to the States. For sure, States will demand that this proportion be raised, but I do not see much room for stretching this further given the Centre's expenditure needs and the constraints on its borrowing limit. Therefore, much of the debate will centre on the horizontal distribution formula.

When the previous Finance Commission was appointed in 2017, its terms of reference became quite contentious because it was asked to take into account the 2011 population figures in determining the expenditure needs of a State. This was a departure from the standard practice until then of mandating Finance Commissions to use the 1971 population numbers so as not to give a perverse incentive to States to neglect family planning with an eye on a higher share of devolution.

States which had done well in stabilising population growth rates, typically the southern States, protested against this change in the base year, calling it a 'penalty for good performance'.

A similar conflict arises with regard to revenue deficit grants that the Finance Commission awards to States which remain in deficit on the current account even after tax devolution. In theory, revenue deficit grants have a neat rationale — that every State in a country should be able to provide a minimum level of service to its residents even if it involves an element of cross-subsidisation. The worry is that this too has become a perverse incentive. Why bother raising revenues on your own when the Finance Commission will compensate you?

Historically, Finance Commissions have struggled to determine how much a State's deficit is due to its fiscal incapacity and how much is due to fiscal irresponsibility. They have tried to tweak the distribution formula to support deficit States without penalising responsible States, a mathematically impossible task since you cannot give more to a State without giving less to another. The net result is that every horizontal distribution formula has been criticised as being inefficient or unfair or both.

These faultlines across States have in fact deepened in recent years along political, economic and fiscal dimensions. When the Bharatiya Janata Party (BJP) lost the Karnataka election last month, many political commentators read that as a north-south divide, with the BJP being confined to the northern States while the Opposition parties rule the southern States. Similarly, many headline numbers suggest that the southern

States of the country are doing better in terms of infrastructure, private investment, social indicators and the rule of law, which has put them on a virtuous cycle of growth and prosperity and widened the north-south gap.

The bottom-line though is that it is in the very nature of horizontal distribution that richer States compensate poorer States. How to ensure that this happens without deepening the divide will challenge the government in defining the terms of reference of the Finance Commission, and of the Finance Commission itself in delivering on those terms of reference.

Cesses and surcharges

The terms of reference of the **Finance Commission** enjoin it to take into account the expenditure needs and revenue earning capacity of the Centre and States. I believe the forthcoming Finance Commission should use this leverage to focus on two issues in particular.

The first is the egregious practice by the Centre of increasingly resorting to a levy of cesses and surcharges rather than raising taxes. A white paper released by the Tamil Nadu government a couple of years ago pointed out that the proportion of cesses and surcharges in the Centre's total tax revenue had nearly doubled from 10.4% in 2011-12 to 20.2% in 2019-20.

There is a perverse incentive in operation here. The straightforward option for raising revenues is to raise taxes, but if the Centre does that, it has to part with 41 paise to States. On the other hand, if it raises the additional rupee by way of a surcharge, it gets to keep all of it.

The next Finance Commission should lay down guidelines for when cesses and surcharges might be levied, and also suggest a formula to cap the amount that can be raised.

Restraint on freebies

The second issue of focus for the Finance Commission should be government spending on what has come to be called freebies. All political parties are guilty on this count,

some more than others, but trying to apportion blame will be a wrong start.

In a poor country, where millions of households struggle for basic human needs, it sounds cruel to argue against safety-nets for the poor. But it is precisely because India is a poor country, that we need to be more circumspect about freebies.

In theory, the restraints imposed by the Fiscal Responsibility and Budget Management (FRBM) Act should have acted as a check on such populist spending, but governments have found ingenious ways of raising debt without it appearing in the budget books. It is not easy to unambiguously define a freebie, and any check on this will be contested as infringing on the sovereignty of elected governments. Nevertheless, the next Finance Commission should bite the bullet in the interest of long-term fiscal sustainability and lay down guidelines on the spending on freebies.

Child labour

Rise in Child Labour

Context :-

The Covid-19 pandemic brought the world to its knees and exposed multiple fault-lines in the healthcare, education, economic, and job-related sectors. India has not been immune to this devastation. As per the official statistics around **5,31,843 deaths have been reported from India to the WHO.**

But it is among the **marginalised sections of society, especially women and children**, that the effect of the pandemic has been **deep and long lasting**. Households that were surviving in poor economic conditions were pushed to the brink of poverty. These conditions have exacerbated the social inequities and have exposed women and children to abuse, violence and lack of security.

A 2022 report by UNICEF and International Labour Organization (ILO) said that as Covid has put children at risk of child labour globally, the number of child labour cases were expected to rise by 8.9 million by the end of 2022. As per the US Department of Labour, disruption in supply chains has thrust people into unemployment leading to an increase in poverty.

What does the Data say about Child Labour in India?

According to the last available Census 2011, there were 10.1 million child labourers in India.

As per the National Crime Records Bureau Report 2022, in 2021, around 982 cases were registered under the Child Labour (Prohibition and Regulation) Act, 1986, with the highest number of cases registered in Telangana, followed by Assam.

Aide et Action's study in India on the impact of COVID-19 on migrant children revealed a two-fold increase in the number of children who accompanied their working parents to the brick-making industry after the first wave COVID-19 pandemic.

According to a study by Campaign Against Child Labour (CACL), there has been a significant increase in the proportion of working children from 28.2% to 79.6% out of the 818 children who were surveyed, mainly because of the COVID-19 pandemic and closure of schools.

According to a new report by the International Labour Organization (ILO) and UNICEF, the number of children in child labour has risen to 160 million worldwide with millions more at risk due to the impacts of COVID-19.

India's biggest child labour employers are – Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, and Maharashtra.

What are the Prominent Causes of Child Labour in India?

Poverty: Many families are unable to afford the basic needs of life and send their children to work instead of school. Poverty also forces some children to work as bonded labourers or migrate to other places in search of work.

Social norms: Some communities and families have a tradition of making their children work in certain occupations, such as agriculture, carpet weaving, or domestic service. Some also believe that education is not important or suitable for girls.

Lack of decent work opportunities for adults and adolescents: Due to the high unemployment rate and low wages, many adults and young people are unable to find decent and dignified work. This leads them to engage in informal and hazardous work or push their children into labour.

Poor School Infrastructure: Many schools in India lack adequate facilities, teachers, and quality education. Some schools also charge fees or other expenses that are unaffordable for poor families. These factors discourage parents from sending their children to school and make them drop out.

Emergencies: Natural disasters, conflicts, and pandemics can disrupt the normal functioning of society and increase the vulnerability of children. Some children may lose their parents, homes, or access to basic services. They may be forced to work for survival or be exploited by traffickers and other perpetrators.

How has the Covid Pandemic aggravated the issue of Child Labour?

Fall in Living Standards: The pandemic has caused economic insecurity, unemployment, poverty and hunger for many families, forcing children to work for survival.

Loss of Guardianship: The pandemic claimed many lives, leaving numerous children without parents. As a consequence, some of these children were compelled to engage in child labor.

Deteriorating Employment Opportunities: The disruption in supply chains, trade and foreign investment has reduced the demand for labour and income opportunities for adults, making children more vulnerable to exploitation.

Rise in Informality: The pandemic has increased the share of informal workers who lack social protection, decent working conditions and access to health care. Children are often employed in informal sectors such as agriculture, domestic work, street vending, mining and construction.

Migration: Economic hardships and disruptions caused by the pandemic may have resulted in increased migration, both internal and cross-border. Migrant children,

particularly those who are unaccompanied or separated from their families, have been more susceptible to exploitation and forced labor.

Temporary School Closures: The pandemic has disrupted the education of millions of children, especially those who lack access to online learning or face barriers such as lack of electricity, devices or internet. School closures increased the risk of dropouts, early marriages, teenage pregnancies and child labour.

What is the Socio-Economic Impact of Child Labour?

Reduced Human Capital Accumulation: Child labor diminishes children's ability to accumulate skills and knowledge, affecting their future productivity and income.

Perpetuation of Poverty and Child Labour: Child labor lowers wages for unskilled work, contributing to the cycle of poverty and continued child labor.

Impaired Technological Progress and Economic Growth: Child labor hampers technological advancements and innovation, slowing down long-term economic growth and development.

Deprivation of Rights and Opportunities: Child labor deprives children of their rights to education, health, protection, and participation, limiting their future opportunities and social mobility.

Undermined Social Development and Cohesion: Child labor weakens social development and cohesion within a country, impacting stability and democracy.

Negative Health Impacts: Child labor exposes children to hazards, physical injuries, diseases, abuse, and exploitation, adversely affecting their physical and mental well-being, mortality rates, and life expectancy.

Initiatives have been taken by the Government to Curb Child Labour

What more should be done to Address the issue?

Strengthening the Legal Framework and its Enforcement: The government should enact and amend laws that prohibit and regulate child labour, in line with the international

standards and conventions.

It should also ensure that the laws are effectively implemented and enforced, by allocating adequate resources, capacity, coordination, data, accountability and political will.

The penalties for violating the child labour laws should be severe and consistent.

Providing Social Protection and Economic Support: The government should provide comprehensive social protection and economic support to poor and vulnerable families, to prevent them from resorting to child labour as a coping mechanism.

This could include regular cash transfers, subsidies, pensions, health insurance, food security, etc.

The government should also facilitate access to credit, savings, microfinance and other livelihood opportunities for poor households.

Ensuring Universal and Quality Education: The government should ensure that all children have access to free and compulsory education up to the age of 14 years, as per the Right to Education Act 2009 and Article 21A of the Constitution.

It should also improve the quality, relevance, safety and inclusiveness of education, by providing adequate infrastructure, teachers, curriculum, materials, scholarships, etc.

It should also follow up with children who drop out or do not enrol in school, and provide them with bridge education, vocational training or alternative learning opportunities.

Raising Awareness and Mobilizing Action: The government should collaborate with civil society organizations, media, corporations and citizens to raise awareness about the harmful effects of child labour and the importance of child rights.

It should also mobilize action and support for the initiatives against child labour, by creating platforms, campaigns, networks, coalitions, etc.

The role of Panchayats can also be explored for raising awareness.

Responding to Emergencies and Crises: The government should prepare for and respond to emergencies and crises that may increase the risk of child labour, such as conflicts, disasters, pandemics or economic shocks.

It should provide humanitarian assistance and protection to affected children and families, such as food, water, shelter, health care, psychosocial support, etc.

It should also ensure the continuity of education and social protection services during and after the crises.

Initiatives have been taken by the Government to Curb Child Labour

Right to Education Act (2009): It added Article 21A to the Constitution which recognizes education as a fundamental right of every child and provides for free and compulsory education to all children aged 6 to 14 years.

Child Labour (Prohibition and Regulation) Act (1986): Bans the employment of children below 14 years and adolescents below 18 years in hazardous occupations and processes..

The Factories Act (1948): Prohibits the employment of children below 14 years of age in any hazardous environment and restricts the working hours and conditions of adolescents (14 to 18 years) who are allowed to work only in non-hazardous processes.

National Policy on Child Labour (1987): Aims to eradicate child labour by prohibiting and regulating it, providing welfare and development programmes for children and their families, and ensuring the education and rehabilitation of working children.

National Child Labour Project (NCLP) Scheme: It seeks to provide non-formal education, vocational training, mid-day meal, stipend and health care to the rescued children and then mainstream them into formal schooling system.

Pencil Portal: The platform aims at engaging the Central Government, State Government, District, civil society and the public in eradicating child labour to achieve

the target of a child labour free society. It was launched by the Ministry of Labour and Employment.

Ratifying conventions of the International Labour Organization: India has also ratified two core conventions of the International Labour Organization on child labour in 2017.

The Minimum Age Convention (1973) - No. 138: This convention requires States party to set a minimum age under which no one shall be admitted to employment or work in any occupation. The minimum age should not be less than the age of completion of compulsory schooling and, in any case, not less than 15 years. However, developing countries may initially specify a minimum age of 14 years.

Digital News Report 2023

Context :- Recently, Digital News Report 2023 was released by Reuters Institute.

The Reuters Institute for the Study of Journalism is dedicated to exploring the future of journalism worldwide through debate, engagement, and research

Key Highlights of the Report

Trust Issue:

People are trusting news content less and less.

Decline in Traditional News Media:

Consumption of traditional news media declined in nearly all the countries surveyed.

Increase in Consumers who Avoid News:

The proportion of news consumers who avoid news has risen sharply across countries, with the report describing the phenomenon as "selective avoidance".

Growth in Digital Subscription:

Despite small increases in the proportion of people willing to pay for online news (mostly in richer countries), the growth in digital subscriptions for news content seems to be leveling off.

Access Way:

The smartphone has become the dominant way in which most people first access news in the morning.

While Facebook remained the most-used social network for news, it is TikTok that has become the fastest-growing network, reaching 40% of 18-24-year-olds, with 15% using the platform for news.

What is 'Selective Avoidance' of News?

About:

Even though the majority of people remain engaged with news, the report finds that a growing minority are increasingly rationing or limiting their exposure.

The report calls this behavior "selective avoidance".

The avoidance of news has doubled in Brazil (54%) and the U.K. (46%) since 2017.

Reasons for the Avoidance:

Due to the repetitiveness of the news agenda — especially around politics and Covid-19 (43%)

Trust issues (29%)

Negative effects on mood (36%)

Leads to arguments (17%)

Led to feelings of powerlessness (6%)

No time for news (14%)

Hard to understand (8%)

What about Preferred Modes of News Consumption?

Across markets and age groups, text is still king when it comes to news consumption.

However, younger audiences were more likely to say they watch the news.

In India, 58% mostly read the news while 17% mostly watch it.

What about the Main Gateway to News?

Smartphone being the preferred mode of access, direct access to apps and websites were becoming less important over time, giving ground to social media, which is becoming more important as a gateway to news due to its ubiquity and convenience.

At an aggregate level, with social media preference (28%) surging ahead of direct access (23%)” notes the report.

What about the Trends in India?

India is a strongly mobile-focused market.

72% of the survey respondents accessed news through smartphones and 35% did so via computers.

Also, 84% of the Indian respondents sourced news online, 63% from social media, 59% from television, and 49% from print.

YouTube (53%) and WhatsApp (51%) were the top social media platforms for sourcing news

Sugar Exports

Context :- According to the Indian Sugar Mills Association (ISMA), sugar mills in India have entered into contracts to export 55 lakh tonnes of sweetener.

The government has allowed sugar mills to export 60 lakh tonnes of sugar till May in the 2022-23 marketing year (October-September).

Present Status of the Sugar Industry in India

About:

Sugar industry is an important agro-based industry that impacts the rural livelihood of about 50 million sugarcane farmers and around 5 lakh workers directly employed in sugar mills.

In (Oct-Sep) 2021-22 India emerges as the world's largest producer and consumer of sugar and world's 2nd largest exporter of sugar.

Geographical Conditions for the Growth of Sugar:

Temperature: Between 21-27°C with hot and humid climate.

Rainfall: Around 75-100 cm.

Soil Type: Deep rich loamy soil.

Top Sugarcane Producing States: Maharashtra, Uttar Pradesh, Karnataka.

Growth Drivers for Sugar Industries:

Impressive Sugar Season (Sep-Oct): All records of sugarcane production, sugar production, sugar exports, cane procured, cane dues paid and ethanol production was made during the season.

High exports: The exports were the highest at about 109.8 LMT without any financial assistance and earned foreign currency of about Rs. 40,000 crores in the year 2021-22.

Indian Government Policy Initiatives: Timely government initiatives in the last 5 years have taken them out of financial distress in 2018-19 to the stage of self-sufficiency in 2021-22.

Encouraging Ethanol Production: The Government has encouraged sugar mills to divert sugar to ethanol and also export surplus sugar so that mills may have better financial conditions to continue their operations.

Ethanol Blending with Petrol (EBP) Programme: The National Policy on Biofuels 2018, provides an indicative target of 20% ethanol blending under the Ethanol Blended Petrol (EBP) Programme by 2025.

Fair and Remunerative Price (FRP): The FRP is the minimum price that sugar mills have to pay to sugarcane farmers for procurement of sugarcane.

It is determined on the basis of recommendations of the Commission for Agricultural Costs and Prices (CACP) and after consultation with State Governments and other stakeholders.

Problems Associated:

Competition from Other Sweeteners: The Indian sugar industry is facing increasing competition from other sweeteners such as high fructose corn syrup, which is cheaper to produce and has a longer shelf life.

Lack of Modern Technology: Many of the sugar mills in India are outdated and lack the modern technology needed to produce sugar efficiently. This makes it difficult for the industry to compete with other sugar-producing countries.

Environmental Impact: Sugarcane cultivation requires large amounts of water and pesticides, which can have a negative impact on the environment.

Additionally, sugar mills often release pollutants into the air and water, which can harm nearby communities.

Political interference: Sugar industry in India is heavily influenced by politics, with the state and central government having a significant role in determining the prices, production, and distribution of sugar. This often leads to a lack of transparency and inefficiency.

What is the Indian Sugar Mills Association (ISMA)?

Indian Sugar Mills Association (ISMA) is a premier sugar organisation in India.

It is the interface between the Government and sugar industry (both private and public sugar mills) in the country.

The prime objective is to ensure that the functioning and interest of both the private and public sugar mills in the country are safeguarded through conducive and growth-oriented policies of the Government.

Integrated Child Development Scheme

What is ICDS?

About:

The Umbrella ICDS is a centrally sponsored scheme implemented by the Ministry of Women and Child Development. It was launched in 1975.

What are the Schemes Under the ICDS?

Anganwadi Services Scheme:

It is a unique programme for early childhood care and development.

The beneficiaries under the Scheme are children in the age group of 0-6 years, pregnant women and lactating mothers.

It provides a package of six services namely supplementary nutrition, pre-school non-formal education, nutrition & health education, immunisation, health check-up and referral services.

Supplementary Nutrition includes Take Home Ration (THR), Hot Cooked Meal and morning snacks and holds importance for many vulnerable households as it impacts the nutritional outcome of the children.

Pradhan Mantri Matru Vandana Yojana:

It provides cash incentive amounting to Rs.5,000/- in three instalments directly to the Bank/Post Office Account of Pregnant Women and Lactating Mother (PW&LM) in DBT (Direct Benefit Transfer) Mode during pregnancy and lactation in response to individual fulfilling specific conditions.

National Creche Scheme:

It provides day care facilities to children of age group of 6 months to 6 years of working women.

The facilities are provided for seven and half hours a day for 26 days in a month.

Children are provided with supplementary nutrition, early childcare education, and health and sleeping facilities.

Scheme for Adolescent Girls:

It aims at out of school girls in the age group 11-14, to empower and improve their social status through nutrition, life skills and home skills.

The scheme has nutritional and non nutritional components which include nutrition; iron and folic acid supplementation; health check up and referral service; nutrition and health education; mainstreaming out of school girls to join formal schooling bridge

course/ skill training; life skill education, home management etc.; counselling/ guidance on accessing public services.

Child Protection Scheme:

It aims to contribute to the improvement and well-being of children in difficult circumstances, as well as, reduction of vulnerabilities to situations and actions that lead to abuse, neglect, exploitation, abandonment and separation of children from parents.

POSHAN Abhiyaan:

It targets to reduce the level of stunting, under-nutrition, anaemia and low birth weight babies by reducing mal-nutrition/undernutrition, anaemia among young children as also, focus on adolescent girls, pregnant women and lactating mothers.

What are the Major Objectives of ICDS?

To improve the nutritional and health status of children in the age-group 0-6 years.

To lay the foundation for proper psychological, physical and social development of the child.

To reduce the incidence of mortality, morbidity, malnutrition and school dropout.

To achieve effective coordination of policy and implementation amongst the various departments to promote child development.

To enhance the capability of the mother to look after the normal health and nutritional needs of the child.

To facilitate, educate and empower Adolescent Girls (AGs) so as to enable them to become self-reliant and aware citizens

Context:- As Cyclone Biparjoy approaches the port of Jakhau in Kutch, Gujarat, there are concerns about the impact on the Great Indian Bustards (GIB) in Naliya region and the Asiatic Lions in the Gir forest.

Concerns

Asiatic Lions:

The Gir forest is home to nearly 700 Asiatic lions, which are found only in this region and are a vital species for conservation.

Conservationists have raised concerns about the vulnerability of having the entire lion population concentrated in one area. Epidemics and natural disasters like the 2018 outbreak of Babesiosis and Cyclone Tauktae in 2019 pose significant risks to the survival of the lions.

In 2013, the Supreme Court issued a directive for the transfer of Asiatic lions from Gujarat's Gir forest to Madhya Pradesh's KNP (Kuno National Park).

The Gujarat government's plea to prevent the translocation of lions was rejected by the court, despite their assertion that these animals were a source of pride for the state.

Great Indian Bustard:

There are only four remaining females in the grasslands of Naliya, Gujarat. As birds, they have better mobility and may be able to sense danger and fly away from the cyclone's path.

However, the impact on their habitat due to flooding caused by heavy rainfall remains a concern.

Efforts are being made to ensure the safety of wildlife during the cyclone. The authorities have cancelled leaves, deployed rescue teams, and equipped hospitals to provide medical assistance to injured animals.

Key Points Related to Asiatic Lions

About:

The Asiatic Lion (also known as the Persian Lion or Indian Lion) is a member of the *Panthera Leo Leo* subspecies that is restricted to India.

Its previous habitats consisted of West Asia and the Middle East before it became extinct in these regions.

Asiatic lions are slightly smaller than African lions.

Distribution:

Asiatic lions were once distributed to the state of West Bengal in the east and Rewa in Madhya Pradesh, in central India.

At present Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion.

Protection Status:

IUCN Red List: Endangered

CITES: Appendix I

Wildlife (Protection) Act 1972: Schedule I

Gir National Park

Gir National Park and Wildlife Sanctuary is located in the Junagadh district of Gujarat.

It was declared as a sanctuary in 1965 and a national park in 1975.

The Gir Forests is the largest compact track of dry deciduous forests in the semi-arid western part of India.

Gir is often linked with "Maldharis" (a traditional pastoral people) who have survived through the ages by having a symbiotic relationship with the lion.

Great Indian Bustard

About:

The Great Indian Bustard (*Ardeotis nigriceps*), the State bird of Rajasthan, is considered India's most critically endangered bird.

It is considered the flagship grassland species, representing the health of the grassland ecology.

Its population is confined mostly to Rajasthan and Gujarat. Small populations occur in Maharashtra, Karnataka and Andhra Pradesh

Vulnerability:

The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.

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 I

What are the Measures to Protect GIB?

Species Recovery Programme:

It is kept under the species recovery programme under the Integrated development of Wildlife Habitats of the Ministry of Environment, Forests and Climate Change (MoEFCC).

National Bustard Recovery Plans:

It is currently being implemented by conservation agencies.

Conservation Breeding Facility:

MoEF&CC, Rajasthan government and Wildlife Institute of India (WII) have also established a conservation breeding facility in Desert National Park at Jaisalmer in June 2019.

Private Paid Group Notes For GS, [6/15/2023 7:08 AM]

Project Great Indian Bustard:

It has been launched by the Rajasthan government with an aim of constructing breeding enclosures for the species and developing infrastructure to reduce human pressure on its habitats.

UPSC PYQ - 2019

Consider the following statements:

1-Asiatic lion is naturally found in India only.

2-Double-humped camel is naturally found in India only.

3-One-horned rhinoceros is naturally found in India only.

Which of the statements given above is/are correct?

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

(d) 1, 2 and 3

Answer

Ans: (a)

UPSC PYQ - 2012

Q. Which one of the following groups of animals belongs to the category of endangered species?

- (a) Great Indian Bustard, Musk Deer, Red Panda and Asiatic Wild Ass
- (b) Kashmir Stag, Cheetal, Blue Bull and Great Indian Bustard
- (c) Snow Leopard, Swamp Deer, Rhesus Monkey and Saras (Crane)
- (d) Lion-tailed Macaque, Blue Bull, Hanuman Langur and Cheetal

Answer

Ans: (a)

Strengthening the Integrated Child Development Services scheme

Context :- Notwithstanding contention regarding the assessment methods of various global surveys, it is true that India's high prevalence of stunting, wasting, and anaemia continues to pose public health risks for children and women. India must strengthen its existing social sector schemes, such as the Integrated Child Development Services (ICDS), to tackle this. The ICDS targets children aged 0-6 years, pregnant women, and lactating mothers; addresses non-formal pre-school education; and breaks the cycle of malnutrition, morbidity, and mortality.

What studies show

Empirical research highlights the correlation between early-life poverty, malnutrition, and inadequate stimulation, and later cognitive and economic challenges. Studies have shown that interventions focusing on nutrition, education, and health during early childhood can significantly improve human capital, particularly in developing countries.

A study published in World Development demonstrated the ICDS's positive impact on cognitive achievements, especially among girls and those from economically disadvantaged families. Another peer-reviewed study in The University of Chicago Press Journals found that children who were exposed to ICDS during the first three years of life completed 0.1-0.3 more grades of schooling than those who were not.

In a study published in the Natural Library of Medicine, it was found that adolescents aged 13-18, who born in villages with proper ICDS implementation, showed a 7.8% increased likelihood of school enrolment and completed an average of 0.8 additional grades compared to their peers who did not have access to the ICDS.

As we commend the remarkable strides made by ICDS, it is imperative to acknowledge the pressing need for a thorough reassessment of our approaches. Despite four decades of relentless efforts, the ICDS still faces the herculean task of ameliorating the nutritional and health outcomes for children aged 0-6 years.

A significant first step towards fortifying the programme is to empower Anganwadi workers. Though the cornerstone of the ICDS, they are frequently stretched beyond their limits. As principal operatives in the Poshan 2.0 initiative, these workers bear the onus of advancing child nutrition, health, and education in their communities. Their roles vary widely from employing modern technology, like smartphones and applications, to practical tasks such as delivering health education, managing feeding programmes, and liaising with auxiliary nurse midwives and other healthcare professionals.

Advantages of more workers

An additional Anganwadi worker could be added to each of India's 13,99,661 Anganwadi centers to lessen the load of these workers. Implementing this approach could yield at least five advantages. First, it would lead to better health and educational outcomes.

Second, children who remained enrolled also exhibited reduced rates of child stunting and severe malnutrition.

Third, the cost of a nationwide roll-out of this model is relatively insignificant in comparison to the potential advantages it offers. The estimated long-term benefits, based on expected improvements in lifetime earnings, would be around 13 to 21 times the expenses.

Fourth, the new Anganwadi worker can be given the responsibility of concentrating only on preschool and early childhood education. This would allow existing workers to dedicate more time to child health and nutrition. It would also enable the Anganwadi workers to expand their outreach and serve a larger number of families.

Fifth, apart from improving the well-being of rural communities, this would create job opportunities for local residents, particularly women. It would lead to the creation of 1.3 million new jobs for women across India.

The operationalisation of the Saksham Anganwadi and Poshan 2.0 proposal hinges on its status as a Centrally Sponsored Scheme. State governments oversee its execution, including administration, management, and monitoring. Consequently, Anganwadi worker recruitment falls under their jurisdiction, guided by regulations and region-specific criteria. This decentralised approach promotes tailored, efficient implementation. The Government of India provides funds for Anganwadi workers' and helpers' honorariums on a cost-sharing basis.

Apart from this, the data have shown a significant variation in implementation of the ICDS and the level of skills of Anganwadi workers. This requires further investments in the training programme. Additionally, the exigency for infrastructural improvement in India's Anganwadi centers cannot be overstated. A disconcerting 2.5 lakh centres operate without functional sanitation facilities and 1.5 lakh centres lack access to potable water. Approximately 4.15 lakh Anganwadi centers do not possess their own pucca building.

Conclusion:-

To unlock the ICDS' full potential and address persistent issues, it is essential to revisit and re-evaluate its strategies and implementation. Empowering Anganwadi workers is just a start.

The Finance Commission is the balancing wheel of fiscal federalism in India
— Indian Constitution

Article 280
(Indian Constitution Part XII)
Constitution of FC as a Quasi Judicial Body

Makes Recommendations to President about

- Distribution of net tax proceeds between Centre and States
- Principles for grants-in-aid to the states by the Centre
- Evaluates the rise in the **Consolidated Fund of a state** to affix the resources of Panchayats/Municipalities
- Other financial matters referred to it by President

*Recommendations of the FC are **only advisory and not binding** on the Government

First FC (1952–57) **Second FC** (1957–62) **Current/Fifteenth FC** (2021–2026)

Chairman - KC Neogy Chairman - K Santhanam Chairman - NK Singh

State Finance Commission

- Constituted by Governor every 5th year (Article 243)
- Reviews the financial position of Panchayats and Municipalities



Iran-Taliban water conflict

What is Salt Cavern-based Storage?
Mekedatu Project

Sustainability of groundwater:
Mains Content

SERBIA KOSOVO CONFLICT

Effective Li-ion battery recycling technology

Earthquake safety of dams

Tribes in news

Rare Earth Permanent Magnet

Indian Flapshell Turtle

Elephant task force in Bannerghatta,

Desiccation-tolerant vascular plant species

Golden Triangle

Suriname:-

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Iran-Taliban water conflict

Context: Iran and Afghanistan are engaged in a long-standing dispute over the sharing of water from the Helmand River.

Both countries rely on the Helmand River as a vital water source for agriculture, livelihoods, and ecosystems in the region.

The dispute: Iran accuses Afghanistan of violating its water rights, claiming that it receives far less water than agreed upon in a 1973 treaty. Afghanistan, on the other hand, attributes the reduced water flow to climatic factors such as a shortage of rainfall.

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Helmand River

- The Helmand River is the longest river in Afghanistan and the primary watershed for the endorheic Sistan Basin.
- It emerges in the Sanglakh Range of the Hindu Kush mountains in the northeastern part of Maidan Wardak Province, where it is separated from the watershed of the Kabul River by the Unai Pass.
- The Helmand feeds into the Hamun Lake on the border between Afghanistan and Iran.
 - Its waters are essential for farmers in Afghanistan, but it feeds into Lake Hamun and is also important to farmers in Iran's southeastern Sistan and Baluchistan province.
- A number of hydroelectric dams have created artificial reservoirs on some of the Afghanistan's rivers including the Kajaki Dam on the Helmand River

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Sistan Region

- Sistan region in the southeast of Iran has very varied climatic conditions.
- Sustained drought and reduced precipitation in the Sistan region, Iran, has dried the Hamoun Lake and local vegetation, significantly reducing ground cover



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Oil reserves in salt caverns: The potential in India

Why in news :-

- Government-owned engineering consultancy firm Engineers India (EIL) is studying the prospects and feasibility of developing salt cavern-based strategic oil reserves in Rajasthan. If the idea comes to fruition, India could get its first salt cavern-based oil storage facility

What is Salt Cavern-based Storage?

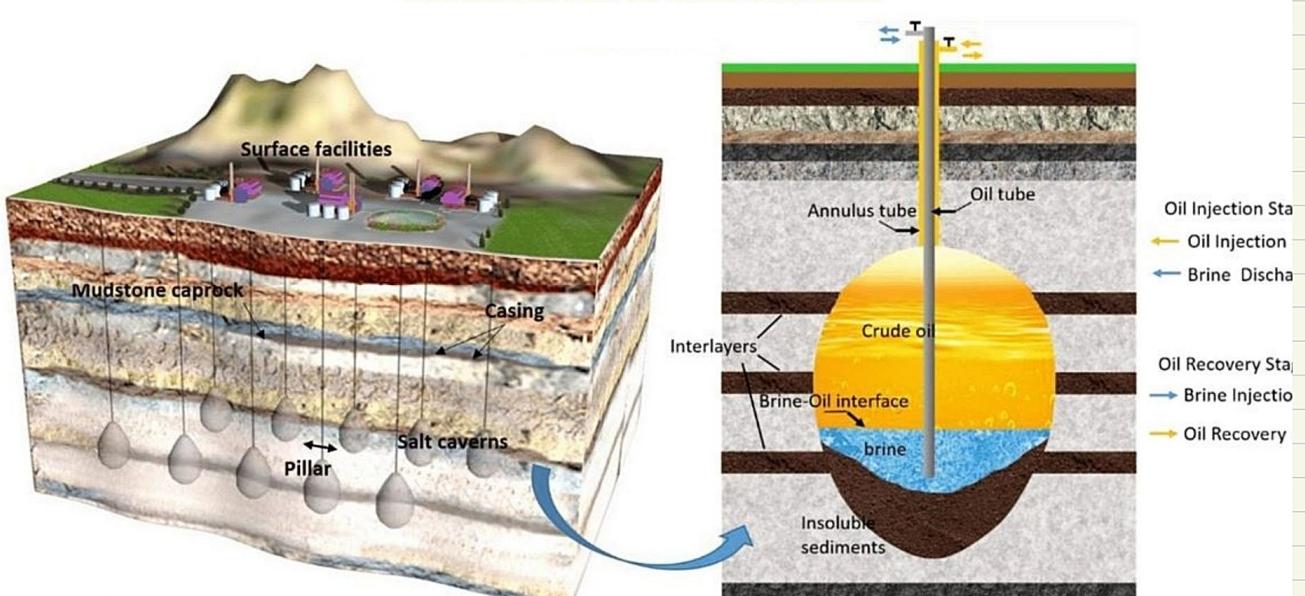
Underground storage caverns are used to store very large quantities of unrefined petroleum and natural gas. These underground caverns are cavities that have been “mined” out of naturally occurring salt domes.

- Approximately 7% of total underground natural gas storage capacity is in Salt Caverns.

Salt caverns are developed by the process of solution mining, which involves pumping water into geological formations with large salt deposits to dissolve the salt.

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Oil Reserves in Salt Caverns



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About India's present strategic oil reserves

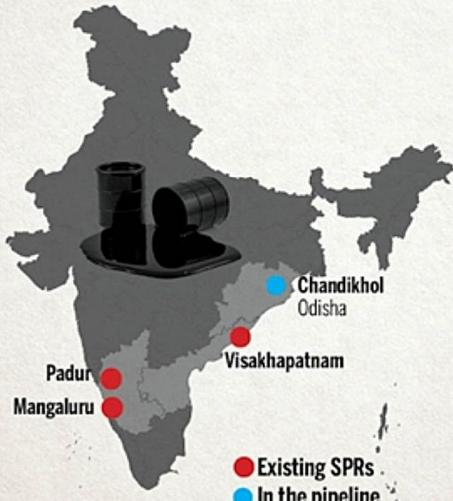
- India currently has an SPR capacity of 5.33 million tonnes, or around 39 million barrels of crude. This can meet around 9.5 days of demand.
- India's strategic oil reserves come under the Petroleum Ministry's special purpose vehicle Indian Strategic Petroleum Reserve (ISPRL).
- The country's three existing strategic oil storage facilities — at Mangaluru and Padur in Karnataka, and Visakhapatnam in Andhra Pradesh — are made up of excavated rock caverns.

NOTE :-

- A strategic oil reserve refers to a stockpile of crude oil or petroleum products that a country maintains as a strategic measure to ensure energy security and stability in times of emergencies or disruptions in oil supply.
- The International Energy Agency (IEA) recommends that all countries maintain emergency oil stockpiles equivalent to 90 days of import protection.

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WHERE DOES INDIA STORE ITS STRATEGIC PETROLEUM RESERVES?



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	Salt Cavern-Based Reserves	Rock Cavern-Based Reserves
Development Process	Developed through solution mining, involving the dissolution of salt deposits	Developed through excavation
Cost and Time	Simpler, faster, and less cost-intensive	More complex, time-consuming, and expensive
Sealing and Accessibility	Naturally well-sealed and engineered for rapid injection and extraction	May require additional sealing measures and access points
Oil Absorbency	Extremely low oil absorbency, creating a natural impermeable barrier	Absorbency varies depending on the rock type
Operation	Can be created and operated almost entirely from the surface	Requires excavation and underground operations
Examples	US Strategic Petroleum Reserve (SPR) consists of salt cavern-based storage facilities	Mangaluru and Padur in Karnataka, and Visakhapatnam in Andhra Pradesh
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Potential & Challenges for India :

- Rajasthan, which has the bulk of requisite salt formations in India, is seen as the most conducive for developing salt cavern-based strategic storage facilities.
- A refinery is coming up in Barmer, and Rajasthan has crude pipelines as well; such infrastructure is conducive for building strategic oil reserves.
- However, no Indian company, including EIL, had the requisite technical know-how to build salt cavern-based strategic hydrocarbon storage.

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Mekedatu Project

About

- The Mekedatu project is a multipurpose project involving the construction of a balancing reservoir near Kanakapura in Ramanagara district, Karnataka.
- Mekedatu, meaning goat's leap, is a deep gorge situated at the confluence of the rivers Cauvery and its tributary Arkavathi.
- Its primary objectives are to provide drinking water to Bengaluru and neighboring areas, totaling 4.75 TMC, and generate 400 MW of power.

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MEKEDATU PROJECT

KARNATAKA

- Mekedatu is Rs 9,000-cr project proposed at Ontigondlu in Karnataka.
- Project site is at confluence of Cauvery & its tributary Arkavathi.
- Reservoir aimed at ensuring drinking water to Bengaluru & adjacent areas.
- Project also envisioned to generate 400 MW of power.



Cauvery river near Mekedatu



ThePrint
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River Cauvery (Kaveri):

- It is known as 'Ponni' in Tamil, and it is the fourth largest river in southern India.
- It is a sacred river of southern India. It rises on Brahmagiri Hill of the Western Ghats in southwestern Karnataka state, flows in a southeasterly direction through the states of Karnataka and Tamil Nadu, and descends the Eastern Ghats in a series of great falls and drains into Bay of Bengal through Pondicherry.
- Left Bank Tributary: Arkavathi, Hemavathi, Shimsa, and Harangi.
- Right Bank Tributary: Lakshmantirtha, Suvarnavati, Noyil, Bhavani, Kabini, and Amaravathi.

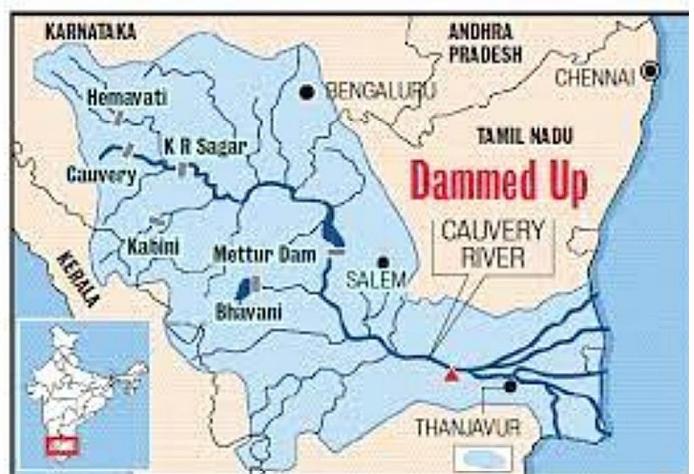
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Others Dams & Project on Cauvery River

- Krishnarajasagar in Karnataka
- Mettur dam and Cauvery delta system in Tamil Nadu.
- Lower Bhavani, Hemavati, Harangi, Kabin are some important projects.



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SERBIA KOSOVO CONFLICT

Where is Kosovo?

- Kosovo is a small, landlocked country in the Balkans in southern-eastern Europe.
- It shares borders with Albania, North Macedonia, Montenegro, and Serbia.
- Kosovo has a population of 1.8 million people, with 92% Albanians, 6% Serbians, and the rest comprising Bosniaks, Gorans, Turks, and Roma.
- Capital :- Pristina

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Note :-

- After the break-up of Yugoslavia in the 1990s, Kosovo sought autonomy and independence.



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Rivers in Kosovo :-

- White Drin is the longest river of Republic of Kosovo which is about 87 kilometer long and originates from Zljeb mountain.
- Tara River
- Ibar River
- Sitnica River
- Lab River

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Serbia :- Capital ---> Belgrade

Bordering Countries



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Rivers of Serbia

- Danube :- the second-longest river in Europe, after the Volga in Russia.
It flows through much of Central and Southeastern Europe, from the Black Forest into the Black Sea
- Tisa River
- Sava River

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MeitY transfers cost effective Li-ion battery recycling technology to nine recycling industries and start-ups

- Ministry of Electronics and Information Technology (MeitY) transferred cost effective Li-ion battery recycling technology to nine recycling industries and start-ups today as part of Mission LiFE under "Promote circularity campaign".
- The novelty of the indigenously developed technology could process assorted types of discarded Li-ion batteries, recovering more than 95 per cent Lithium (Li), Cobalt (Co), Manganese (Mn) and Nickel (Ni) contents in the form of their corresponding oxides/carbonates of about 98 per cent purity.

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- The recycling process of lithium-ion batteries involves several steps.
 - First, the batteries are collected, sorted and disassembled
 - Next, the electrodes, which contain valuable metals like lithium, cobalt, manganese, and nickel, are extracted, through a process called leaching, where the electrodes are submerged in a liquid that dissolves these metals.
 - After that, the metals are purified to remove impurities, resulting in high-purity lithium, cobalt, manganese, and nickel compounds.
- Aim is to recover valuable materials from lithium-ion batteries, reducing the need for mining and minimizing environmental impact.
- It helps conserve resources and promotes sustainable practices in battery manufacturing.
- Developed by the technology was developed at the Centre of Excellence on E-waste Management, in collaboration with the Government of Telangana and industry partner.

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Lithium

- The discovery of 5.9 million metric tonnes of lithium has been made in J&K. This is the first major lithium reserve that has been found in India. Earlier, a survey led by the Atomic Minerals Directorate for Exploration and Research showed the presence of 1,600 tonnes (inferred category) of lithium resources in the Marlagalla area of Karnataka's Mandya district.

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World Reserves -

Bolivia

Argentina

Chile > Australia > China,

World Production -

Australia

Chile

China

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Cobalt

- Cobalt is associated mostly with copper, nickel and arsenic ores.
- Rechargeable Battery Industry.
- manufacture powerful magnets

India Reserves -

Odisha

Jharkhand

Nagaland

India Production -

Imports - Netherlands

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World Reserves -

Congo (Kinshasa)

Australia

World Production -

DRC Democratic Rep of Congo

Russia

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Manganese Ore

- Manganese in alloy form is an essential input in steel making and steel is one of the most important indicators of growth in the industrial economy of any country
- Dry battery Industry
- The production of manganese ore at decreased by about 0.29% compared to that in the previous year.

India Reserves -

Odisha

Karnataka

Madhya Pradesh

India Production -

Madhya Pradesh

Maharashtra

Odisha

World Reserves -

South Africa

Brazil

Australia

World Production -

South Africa

Gabon

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Nickel

- It has a melting point of 1,453 °C, relatively low thermal & electrical conductivities, high resistance to corrosion & oxidation, excellent strength & toughness at high temperatures
- stainless steel making; catalysis chemical industries, as an electroplating material; heat resistant alloys; alloying element for non-ferrous metals; space, defence & rocket industries; and nickel cadmium batteries.

India Reserves -

Odisha

World Reserves -

Indonesia

Jharkhand

Australia

Nagaland

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India Production -

Jharkhand

World Production -

Indonesia

Imports - Dependent

Philippines

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Jaipur institute identified as the first centre for earthquake safety of dams



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- Why in news :-

- Malviya National Institute of Technology (MNIT) in Jaipur has been identified as the National Centre for Earthquake Safety of Dams, the first centre of its kind in the country.
- The centre will develop indigenous capabilities in making the country self-reliant in handling technology issues related to structural and earthquake safety of dams.
- Following the signing of a memorandum of understanding with the National Dam Safety Authority (NDSA), functioning under the Union Ministry of Jal Shakti, the new centre will work intensively with dam engineers, regulators and policy makers

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Key points from Dam Safety Act 2021 ,

- Applicability : It applies to all specified dams in the country. These are dams with:
 - height more than 15 metres
 - height between 10 metres to 15 metres and subject to certain additional design and structural conditions.
- National Committee on Dam Safety: The National Committee on Dam Safety will be constituted and will be chaired by the Chairperson, Central Water Commission. All other members will be nominated by the central government, and include:
 - up to 10 representatives of the central government,
 - up to seven representatives of the state governments (by rotation)
 - up to three dam safety experts.

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- **National Dam Safety Authority:**

- The National Dam Safety Authority will be headed by an officer, not below the rank of an Additional Secretary, who will be appointed by the central government. Functions of the Authority include:
- implementing the policies formulated by the National Committee on Dam Safety,
- resolving issues between State Dam Safety Organisations (SDSOs), or between a SDSO and any dam owner in that state,
- specifying regulations for inspection and investigation of dams,
- providing accreditation to agencies working on construction, design, and alteration of dams.

NOTE :-

This centre will study seismic hazards on dams across the country, how dams must be developed and how existing dams can be protected .

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Why to study Earthquake :-

The number of specified dams in the country is over 5,500 and about 70 of them are those of national importance. "Large dams are high-risk structures, whose operational failure may lead to uncontrolled and sudden release of impounded water. This in turn will have catastrophic consequences on life, property and the ecology.

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Tribes in news

Chin -Kuki :-

- Kuki-Chin, is a Christian community from Bangladesh's Chittagong hill tracts (CHT). Native to mizo hills , they are present in all state except Arunachal Pradesh.
- It shares close ethnic ties with people in Mizoram and is largely Christian.
- Although the Chin-Kuki group consists of Gangte, Hmar, Paite, Thadou, Vaiphei, Zou, Aimol, Chiru, Koireng, Kom, Anal, Chothe, Lamgang, Koirao, Thangal, Moyon and Monsang.
 - The term Chin is used for the people in the neighbouring Chin state of Myanmar whereas Chins are called Kukis on the Indian side

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Zomi Tribe :-

- The word Zo is used to describe an ethnic group, also known as the Mizo, the Kuki, the Zomi, the Chin and a number of other names based on geographic distribution, are a large group of related Tibeto-Burman peoples spread throughout the northeastern states of India, northwestern Myanmar (Burma) and the Chittagong Hill Tracts of Bangladesh.
- In northeastern India, they are present in: Nagaland, Mizoram, Manipur and Assam.

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Meiteis :-

- Meiteis are the largest community in Manipur and there are 34 recognized tribes broadly classified as 'Any Kuki Tribes' and 'Any Naga Tribes'.
- The Imphal valley in the state, at the centre of Manipur, accounts for about 10% of its landmass and is home primarily to the Meitei and Meitei Pangals who constitute roughly 64.6% of the state's population.

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Communities added recently in the lists of Scheduled Tribes.

These include:

- Binjhia in Chhattisgarh
- Narikoravan and Kurivikkaran in Tamil Nadu
- 'Betta-Kuruba' in Karnataka,
- Hattis from Himachal Pradesh
- Gond Community in Uttar Pradesh

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Rare Earth Permanent Magnet

News: Recently, the PM has inaugurated India's first facility to produce rare earth permanent magnets in Visakhapatnam. The plant is based on indigenous reduction-diffusion technology and produces samarium-cobalt (SmCo) rare earth permanent magnets and neodymium-iron-boron (NdFeB) permanent magnets.



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Rare Earth Magnets :-

- Rare-earth magnets are permanent magnets having a composition of alloys manufactured from rare earth elements (mostly elements from lanthanide series, and alloys).
- There are two types of rare earth magnets, and they are neodymium magnets and samarium-cobalt magnets.

Note :-

- Rare earth magnets tend to be highly fragile and also would be exposed to corrosion, so they would be typically coated or plated to protect them from breaking or crumbling into powder.
- The term “rare earth” could be confusing as these metals are not particularly rare or precious; they are usually abundant in plenty like tin or lead

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Samarium-Cobalt Magnets

Name	Symbol
Lanthanum	La
Cerium	Ce
Praseodymium	Pr
Neodymium	Nd
Promethium	Pm
Samarium	Sm
Europium	Eu
Gadolinium	Gd
Terbium	Tb
Dysprosium	Dy
Holmium	Ho
Erbium	Er
Thulium	Tm
Ytterbium	Yb
Lutetium	Lu

- These are the first group of rare earth magnets discovered, which are less used unlike neodymium magnets owing to their cost being higher and magnetic field strength being weaker.
- The samarium-cobalt has a Curie temperature being higher and has a higher resistance to oxidation, but sintered samarium-cobalt magnets are fragile and vulnerable to chipping and cracking, and might crumble when exposed to thermal shock.



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Neodymium Magnets:

- These types of magnets were discovered during the 1980s and are the most affordable and strongest type of rare-earth magnet. They are manufactured out of an alloy of iron, neodymium and boron, termed by the abbreviation NIB.
- Neodymium magnets have a higher coercivity. They are of use in various applications such as electric motors for jewelry clasps, hard disk drives, and magnetic hold-downs.



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Common applications of rare-earth magnets include:

- computer hard disk drives
- wind turbine generators
- speakers / headphones
- bicycle dynamos
- MRI scanners
- fishing reel brakes
- permanent magnet motors in cordless tools
- high-performance AC servo motors

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Other applications of rare-earth magnets include:

- Other applications of rare-earth magnets include:
- LED Throwies
- Launched roller coaster
- Electrodynamic bearings
- Linear motors (used in magnetic levitation trains)
- Electric guitar pickups
- Stop motion animation
- Diamagnetic levitation experimentation – It is the study of the superconductor dynamics and magnetic field levitation
- Neodymium magnet toy

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Turtles die as fire breaks out in wetland in Kasaragod

Fifty-six turtles were found burnt to death after a fire broke out in a five-acre wetland at Payyanki, near Charvathur, in Kasaragod on Sunday.



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Indian Flapshell Turtle

- The Indian flapshell turtle is a freshwater species of turtle and is found in many states.
- It is a relatively small soft-shell turtle with a carapace length of up to 350 millimetres.
- They are found in Pakistan, India, Sri Lanka, Nepal, Bangladesh (Indus and Ganges drainages), and Myanmar (Irrawaddy and Salween Rivers).
- They live in the shallow, quiet, often stagnant waters of rivers, streams, marshes, ponds, lakes and irrigation canals, and tanks.
- These turtles prefer waters with sand or mud bottoms because of their tendency to burrow.

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Indian flapshell turtle is found in Pakistan, India (common in lakes and rivers), Sri Lanka, Nepal, Bangladesh (Indus and Ganges drainages), and Myanmar (Irrawaddy and Salween Rivers

Indian flapshell turtle

Temporal range: Miocene to recent, 15.97–0 Ma

PreC E S D C P T J K PgN



Lissemys punctata andersoni

Conservation status



Vulnerable (IUCN 3.1)^[1]

CITES Appendix II (CITES)^[2]

Indian Black Turtle

- Indian Black Turtle is a medium-sized found across the Indian subcontinent.
- It is an aquatic species, mainly associated with standing water bodies, sometimes rivers.
- The species is an omnivore, consuming both aquatic macrophytes and invertebrates.
- The species shows a crepuscular to a nocturnal lifestyle, with individuals seen foraging after dark along the edges of water bodies.
- The distribution in India includes the hill ranges of the Western Ghats, south of Gujarat, and the southeast coast, and then a separate disjunct distribution in northern and northeastern India.
- Conservation status: IUCN: Least concern

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The species occurs in
India, Bangladesh,
Myanmar, Sri Lanka,
the Maldives, Nepal, and
the Chagos Archipelago

Indian black turtle



Melanochelys trijuga

Conservation status



Least Concern (IUCN 3.1)^[1]

CITES Appendix II (CITES)^[2]

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Karnataka govt to set up elephant task force in
Bannerghatta, Ramanagar :-



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Elephant Task Force :- 2010

how the Tiger Task Force was established,
conflict between humans and elephants.

The principal goal of the Elephant Task Force was to offer practical solutions for the long-term protection of elephants.

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Asian Elephants:-

- Global Population: Estimated 20,000 to 40,000.
- The Indian subspecies have the widest range and account for the majority of the remaining elephants on the continent.
- There are around 28,000 elephants in India with around 25% of them in Karnataka.
- IUCN Red List Status: Endangered.
- Wildlife (Protection) Act, 1972: Schedule I.
- CITES status – Appendix I.

Three subspecies are recognised:

- the Sri Lankan elephant occurs in Sri Lanka;
- the Indian elephant occurs in mainland Asia: Bangladesh, Bhutan, Cambodia, China, India, Laos, Malay Peninsula, Myanmar, Nepal, Thailand, Vietnam;
- the Sumatran elephant occurs in Sumatra. @SUDARSHANGURJAR | DISCOUNT CODE - SGYT10



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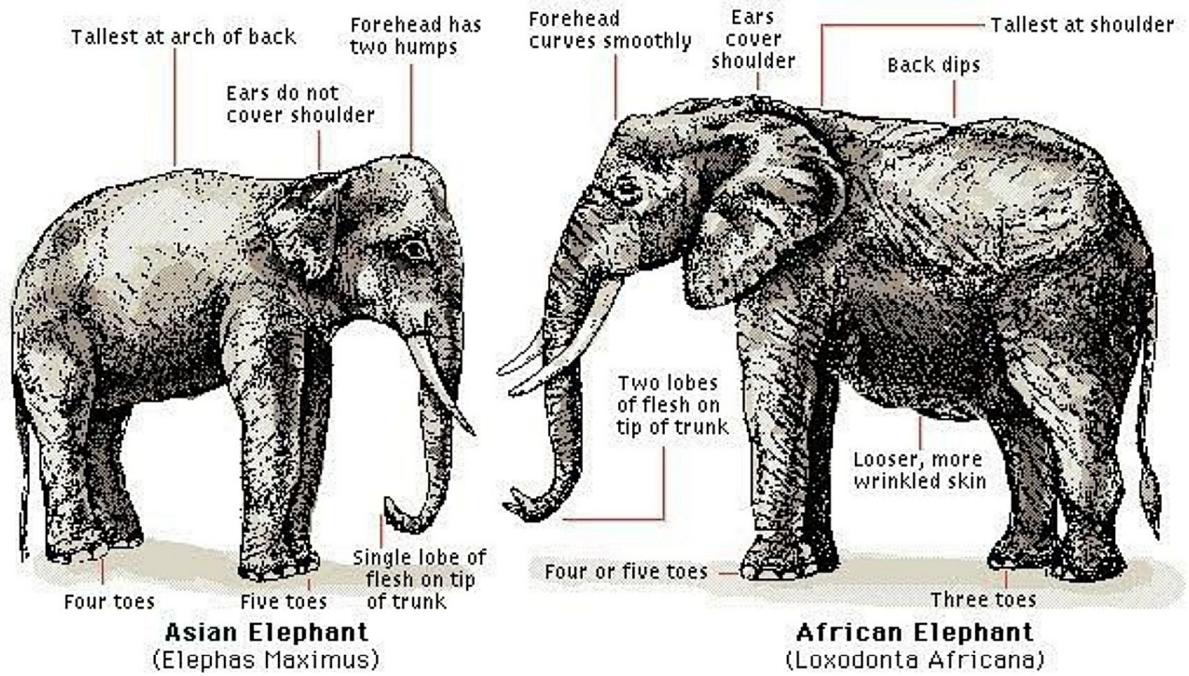
African Elephant :-

African Elephants

There are two subspecies of African elephants, the Savanna (or bush) elephant, and the Forest elephant.

- Global Population: Around 4,00,000.
- IUCN Red List Status:
- African Forest elephant: critically endangered
- Savanna elephant: endangered

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New study discovers 62 desiccation-tolerant vascular plant species in India's Western Ghats, with potential applications in agriculture & conservation



Desiccation-tolerant plant
Corallodiscus lanuginosus

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- Desiccation-tolerant vascular (DT) plants are able to withstand extreme dehydration, losing up to 95% of their water content, and they revive themselves once water is available again. This unique ability allows them to survive in harsh, arid environments that would be uninhabitable for most other plants
- Examples: *Selaginella lepidophylla* (Rose of Jericho); *Xerophyta viscosa*; *Myrothamnus flabellifolius* (Resurrection plant); *Craterostigma plantagineum*; *Haberlea rhodopensis*.
- Moreover, out of the 62 species identified, 16 are endemic to India
- Desiccation-tolerant plants have special adaptations e.g., mechanisms to prevent cellular damage during dehydration; thick cuticle on leaves, which reduces water loss through evaporation etc

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Promising Applications for Agriculture:-

- The research on Desiccation-Tolerant plants in the Western Ghats holds promising implications for agriculture, particularly in areas with limited water resources.
- Understanding the mechanisms by which DT plants tolerate dehydration could potentially lead to the development of crops that are more drought-resistant and require less water.

(What are **Vascular plants**? संवहनी पादप

Vascular plants, also known as tracheophytes, are a group of plants that have specialized tissues for conducting water, nutrients, and sugars throughout their structures. These tissues are called vascular tissues and include the xylem and phloem.)

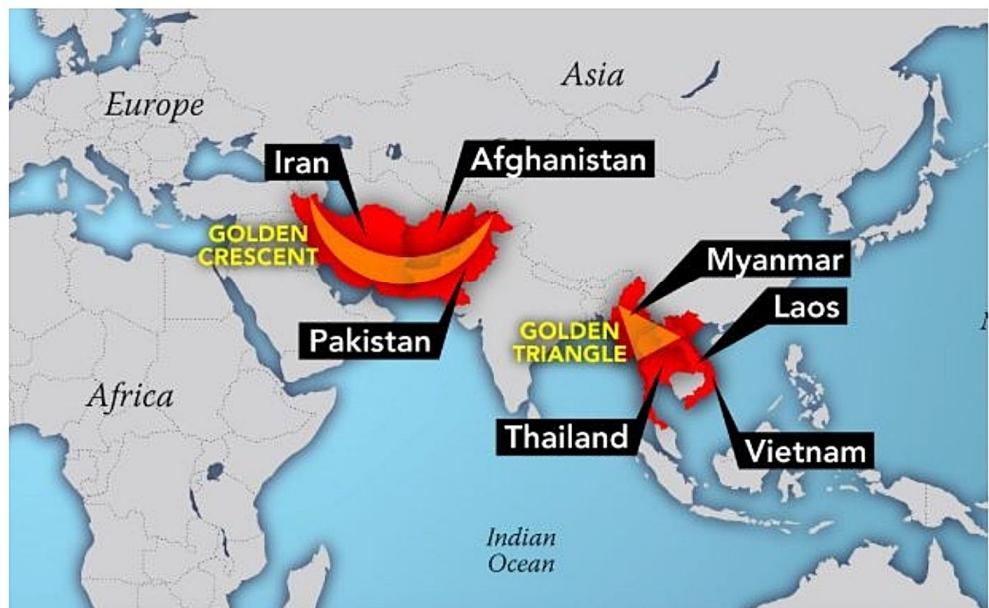
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Golden Triangle :-

India is sandwiched between two largest Opium producing regions of the world that is the Golden triangle on one side and the Golden crescent on other.

- The **golden triangle** area comprises Thailand, Myanmar, Vietnam and Laos.
- The **golden crescent** area includes Pakistan, Afghanistan and Iran.

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- Opium is derived from the poppy plant and cannabis from the hemp plant. Both have psychoactive effects and can cause addiction and health problems.
- Legally, the key difference between the two is tetrahydrocannabinol (THC) content.{HEMP & MARIJUANA}
 - According to World Drug Report 2022, India has the 4th largest quantity of opium seized in 2020 at 5.2 tons, and the 3rd highest amount of morphine was also seized in the same year at 0.7 tons.
 - According to the United Nations Office on Drugs and Crime (UNODC), India accounted for 7% of the global opium seizures and 2% of the global heroin seizures in 2019.

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- Legislative Measures: The government has enacted various laws such as the Drugs and Cosmetics Act, 1940;
- the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985; and
- the Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act (PITNDPS), 1988To regulate and prohibit the manufacture, distribution, possession, and consumption of drugs.
- stringent penalties for drug offenses.
- The government has launched various schemes and programmes such as National Action Plan for Drug Demand Reduction (NAPDDR), Nasha Mukt Bharat Abhiyan (NMBA),

Q. India's proximity to the two of the world's biggest illicit opium-growing states has enhanced her internal security concerns. Explain the linkages between drug trafficking and other illicit activities such as gunrunning, money laundering and human trafficking. What counter-measures should be taken to prevent the same? (2018)

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President Droupadi Murmu arrived in Suriname on June 9 on a three-day visit, her first since assuming office in July last year, to bolster India's bilateral engagement with the South American country.

Suriname:-

- Suriname is bordered by the Atlantic Ocean to the north, by French Guiana to the east, by Brazil to the south, and by Guyana to the west.
- located on the northern coast of South America.
- bauxite, of which it is one of the top producers in the world.
- tropical rainforest.

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Sustainability of groundwater: Increased rainfall alone will not help groundwater recovery

Context

- Between 2002 and 2022, about 95% of India's groundwater depletion occurred in north India mainly as a result of increased groundwater pumping to meet irrigation demands for crops.
- As groundwater use and summer monsoon rainfall variability are the two main drivers of groundwater storage, climate change can throw new challenges for the sustainability of groundwater.

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Groundwater Scenario in India :-

Availability :-

- Groundwater is the water that seeps through rocks and soil and is stored below the ground. The rocks in which it is stored are called aquifers.
- This hidden resource accounts for just 0.62% of the total water and 30% of the freshwater available on earth.
- In India, out of the 1,123 BCM/year usable water resources of the country, the share of groundwater is 433 BCM/year (~39%)

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Groundwater crisis in India:-

- Groundwater is India's most used water resource accounting for a quarter of total GW extraction in the world.
- The challenges in groundwater resource management are complex and multifaceted. These include :- Unregulated extraction; Excessive irrigation; Poor knowledge of GW management system; GW pollution; Climate change
- As per the 2021 CAG report, groundwater extraction in India increased from 58% to 63%, between 2004-17, exceeding the groundwater recharge rate.
- Over extraction at the current rate can threaten nearly 80% of drinking water over the next two decades.

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Groundwater Extraction in India:-

- The Total Annual Ground Water Extraction of the entire country for the year 2022 has been estimated as 239.16 BCM.
- Groundwater resources are primarily consumed by the agricultural sector. Irrigation accounts for around 87% of the total annual groundwater extraction or 208.49 BCM. Only 30.69 BCM, or roughly 13% of the total extraction, is for domestic and industrial consumption.

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Report related with groundwater in news

Dynamic Ground Water Resource Assessment 2022 Report ;-

An assessment report on groundwater by the Central ground water board and States/UTs was released recently. (Under Ministry of Jal Shakti)

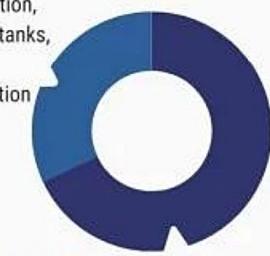
KEY POINTS OF REPORT

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Groundwater Sources

Others

32% Canal seepage, Return flow from irrigation, Recharge from tanks, ponds and water conservation structures.



Rainfall

68% Direct ingress of Rainwater into ground.

Source: Ministry of Jal Shakti

Groundwater Usage

Domestic

11% Second-highest usage for household works.



Agriculture

87% Highest usage for irrigation in agriculture sector.

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Challenges to Groundwater Sustainability:

- Warming climate will increase the frequency of hydro-climate extremes - floods and droughts.
- Warming climate will also increase the amount of summer monsoon rainfall.
- However, the projected increase in groundwater for irrigation can cancel the benefits of increased precipitation (in groundwater recovery) in the future.
- The role of increased evapo-transpiration due to warming climate

(Evapo-transpiration is the sum of all processes by which water moves from the land surface to the atmosphere via evaporation and transpiration.)

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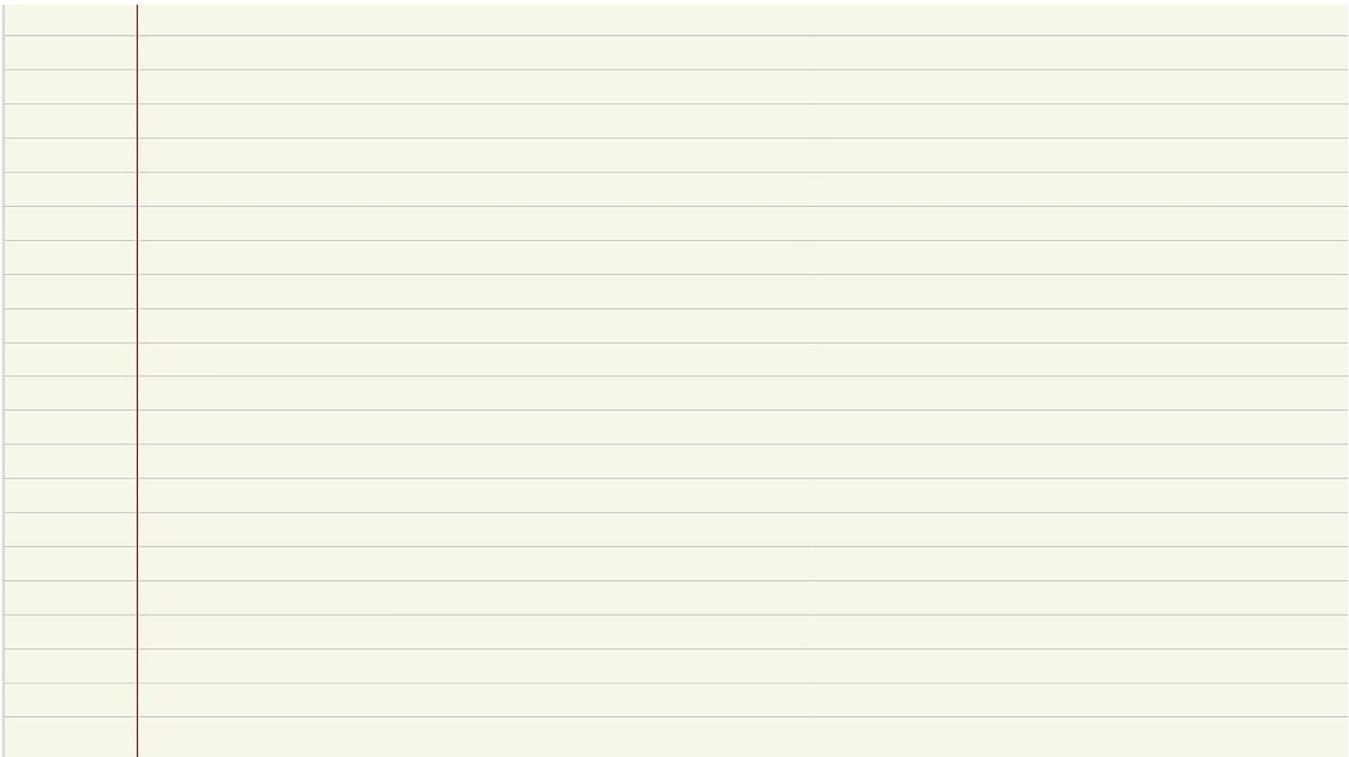
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Geography & Environment Current Affairs (June – Part 2)

By Sudarshan Gurjar

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Solar panel – an eco-disaster waiting to happen



Context :- While they are being promoted around the world as a crucial weapon in reducing carbon emissions, solar panels have an average lifespan of 25-30 years.

"The world has installed more than one terawatt of solar capacity. Ordinary solar panels have a capacity of about 400W, so if you count both rooftops and solar farms, there could be as many as 2.5 billion solar panels."

It's going to be a waste mountain by 2050, unless we get recycling chains going now.

NOTE:- The world's first factory dedicated to fully recycling solar panels officially opens in France.

Does India have any law/policy to deal with solar waste :-

- According to a report by the National Solar Energy Federation of India (NSEFI), India could generate over 34,600 tonnes of cumulative solar waste in India by 2030.
- India does not have a solar waste management policy, but it does have ambitious solar power installation targets.

Challenges in Managing PV Waste in India?

- Informal Handling of PV Waste.
- Limited Market for Reusing Recycled PV Waste.
- Hazardous Waste Classification.
- Limited Local Solar PV-panel Manufacturing

What should be done :-?

- India is expected to generate a vast amount of PV waste over the next 20 years, making it one of the top five leading photovoltaic waste producers worldwide by 2050.
- Therefore, India needs to install clear policy directives, well-established recycling strategies, and greater collaboration to prepare for this new challenge. By addressing the gaps in PV waste management, India can achieve its goal of a circular economy and effective waste management while promoting sustainable development.

How chocolate could counter climate change ?

Context :- Is it possible for your good old delicious chocolate to become a climate crusader?



Hamburg, Germany: At a red-brick factory in the German port city of Hamburg, cocoa bean shells go in one end, and out the other comes an amazing black powder with the potential to counter climate change. The substance, dubbed biochar, is produced by heating the cocoa husks in an oxygen-free room to 600 degrees Celsius (1,112 Fahrenheit). The process locks in greenhouse gases and the final product can be used as a fertiliser, or as an ingredient in the production of "green" concrete.

- The biochar traps the CO₂ contained in the husks -- in a process that could be used for any other plant.



Biochar:-

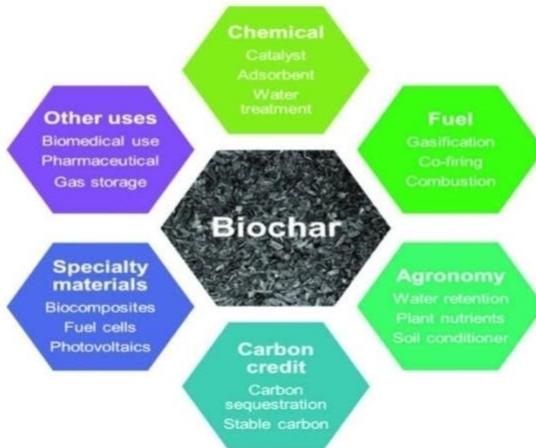
- Biochar is a high-carbon, fine-grained residue that is currently produced through modern **pyrolysis processes** (direct thermal decomposition of biomass in the absence of oxygen and preventing combustion).
- It produces a mixture of solids (the biochar proper), liquid (bio-oil), and gas (syngas) products.
- Biochar may increase soil fertility of acidic soils (low pH soils), increase agricultural productivity, and provide protection against some foliar and soil-borne diseases.



Thermal Treatment Technologies:

- **Pyrolysis** is the heating of an organic material, such as biomass, in the absence of oxygen. Biomass pyrolysis is usually conducted at or above 500 °C, providing enough heat to deconstruct the strong biopolymers.
- **Gasification** is a process that converts organic or fossil-based carbonaceous materials at high temperatures (>700°C), without combustion, with a controlled amount of oxygen and/or steam into carbon monoxide, hydrogen, and carbon dioxide.
- **Incineration** is a rapid oxidation process, which is used to convert VOCs (Volatile Organic Compounds) and other gaseous hydrocarbon pollutants to carbon dioxide and water.
- **Torrefaction** converts biomass in the absence of oxygen at a temperature of 200–300°C to produce torrefied materials, bio-oils, biochar, etc.

Applications of Biochar



Tribal 'green warrior': Damodar Kashyap



Damodar Kashyap, a 74-year-old tribal farmer in Chhattisgarh's Bastar district, has transformed 400 acres of land in his village into a flourishing forest through a community-based approach to conservation.

Content for mains , can be used in ethics, essay and environment questions.

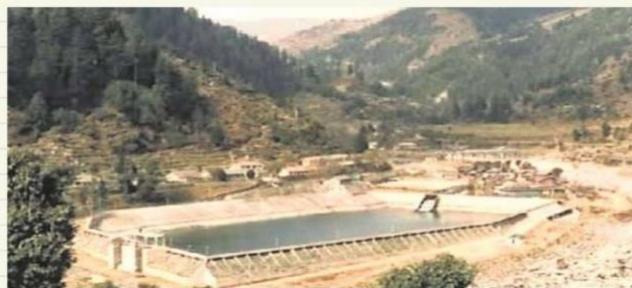
As the village sarpanch, he implemented strict rules and fines for forest destruction and deployed villagers to patrol and guard the forest. Kashyap also utilized local beliefs and practices to emphasize the sacredness of the forest.

He has received recognition for his conservation work, including the Paul K Feyerabend Foundation Award in 2014 and a chapter in the Class 9 social sciences textbook of the Chhattisgarh Board

Shanan Power Project

Context:

Punjab and Himachal Pradesh are set for a face-off as the 99-year lease on the Shanan hydropower project situated at Jogindernagar in Mandi district of Himachal Pradesh



About Shanan Power Project:

- The Shanan hydropower project in the Mandi district of Himachal Pradesh is one of the oldest hydroelectric projects. It was built by the British in 1925.
- The project harnesses the power of the Uhl River, a tributary of the Beas River, and generates 110 MW of electricity.
- The project consists of a dam, a powerhouse, a reservoir and a network of canals and tunnels. The project is also a source of irrigation and drinking water for the surrounding areas.

Uhl River :-

The Uhl is a Himalayan river which is part of the watershed of Beas river. The river originates at the Thamsar Glacier in the Dhauladhar range of the Himalayas, flows through the Uhl valley. In its lower course, it is also known as Tiu Nala and the Uhl valley is known as Chohar valley.

SOME FACTS :-

- Beas River originates from the Beas Kund in Rohtang La Pass in the Indian state of Himachal Pradesh.
- The Beas River flows in the states of Himachal Pradesh and Punjab, within India completely.



Uhl down to Baragram

Location	
Country	India
State	Himachal Pradesh
Region	Asia
City	Barot, Kamand in Mandi.
Physical characteristics	
Source	Thamsar Glacier
• location	Himachal Pradesh, India
Mouth	Beas River
• location	8 km upstream from Mandi, India
• coordinates	31°42'58"N 76°59'50"E

Dam breach in Ukraine's war zone

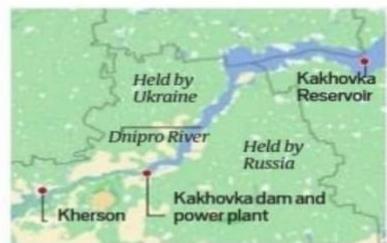
A huge Soviet-era dam on the Dnipro River that separates Russian and Ukrainian forces in southern Ukraine was breached.



Kakhovka Dam

About:

- The Kakhovka Dam was built in 1956 as part of the Soviet Union's ambitious project to harness the Dnipro River for irrigation, power generation and navigation.
- The dam also supplied water to the Crimean Peninsula, which Russia annexed in 2014, and to the Zaporizhzhia Nuclear Power Plant, which is under Russian control.
- The dam was located on the front line between Ukrainian and Russian forces in southern Ukraine, where fighting has been ongoing since 2014.



- holds an 18 km³ reservoir – a volume about equal to the Great Salt Lake in the U.S. state of Utah.



Dnieper River

- The Dnieper or Dnipro is one of the major rivers of Europe, rising in the Valdai Hills near Smolensk, Russia, before flowing through Belarus and Ukraine to the Black Sea.
- It is the longest river of Ukraine and Belarus and the fourth-longest river in Europe, after the Volga, Danube, and Ural rivers.



Govt permits import of pet coke as raw material for lithium-ion batteries

Key points of DGFT notifications :-

- Import of needle pet coke (NPC) is 'free' for making graphite anode material for Li-ion battery as feedstock/raw material and not for any other purposes, including use as fuel or for trade.
- The sulphur content in the NPC should be less than 0.8 per cent, which would be monitored by state pollution control boards.
- It added that low sulphur pet coke would not be used by the steel industry as fuel or for trade.



Petroleum Coke (Pet coke)

About Petroleum Coke:

- It is a final carbon-rich solid material and residual waste material extracted from oil refining.
- It is a spongy, solid residue from oil distillation that can be burned for fuel similar to coal.
- It is a byproduct created when bitumen is found in tar sands.
- Bitumen contains a higher number of carbon atoms than regular oil.
- It is high in calorific value and easy to transport and store.
- It releases toxic gases like carbon dioxide, nitrous oxide, mercury, arsenic, chromium, nickel, and hydrogen chloride after burning

Needle pet coke

It is called “needle” coke because of its needle-like structure, which is formed during the refining process. This structure gives it certain advantageous properties that make it suitable for specific applications.

- One of the primary uses of needle pet coke is in the production of graphite electrodes used in electric arc furnaces for steelmaking. The needle-like structure of NPC provides excellent electrical conductivity and high strength, making it ideal for manufacturing high-quality electrodes. These electrodes are crucial for the efficient melting and refining of steel.
- Other applications that require high-performance carbon materials, such as in the production of lithium-ion batteries, aerospace components, and certain carbon products used in the chemical industry.

Note :-

India is one of the largest consumers and importers of petcoke in the world

- According to the Ministry of Petroleum and Natural Gas, India consumed 27.9 million tonnes of petcoke in 2021–22, of which 16.7 million tonnes were imported.
- India mainly imports petcoke from the United States, Saudi Arabia, Venezuela and China.
- India's demand for petcoke is driven by its growing cement industry, which accounts for about 75% of its domestic consumption. Petcoke is also used by power plants, steel plants, textile mills and other industries in India.

Context :-

The Bihar government plans to collaborate with the Geological Survey of India (GSI) to gather valuable geological information about magnetite-bearing rocks and ultramafic rocks in the region.



What are Magnetite-bearing rocks?

- Magnetite-bearing rocks are rocks that contain magnetite, a black, opaque, and magnetic mineral.
- These rocks often exhibit magnetic anomalies and are known to host valuable minerals such as Chromite, Nickel, Platinum Group of Elements (PGE), and gold.
- Magnetite is one of the most abundant metal oxides and has various industrial applications.
- More often, magnetite occurs in its massive form, commonly called 'lodestone'

What are ultramafic rocks?

- Ultramafic rocks are a type of igneous rock that have a high concentration of dark-coloured minerals rich in iron and magnesium.
- These rocks typically contain very little silica and are composed mainly of minerals such as olivine and pyroxene.
- Ultramafic rocks are associated with deep-seated mantle processes and are often found in areas where tectonic plates are converging.

GEOLOGICAL SURVEY OF INDIA

- The Geological Survey of India (GSI) is a scientific agency.
- It is one of the oldest of such organisations in the world and the second oldest survey in India after Survey of India (founded in 1767).
- GSI, headquartered at **Kolkata**, has six Regional offices located at Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata.
- Presently, Geological Survey of India is an attached office to the Ministry of Mines.

NHAI Comes Out With Its First Sustainability Report On Environmental Responsibility

Key findings of report :-

- Gradual decrease in GreenHouse Gas emissions intensity of 9.7 percent in FY 2020-21 and 2 percent in FY 2021-22. NHAI has continuously been using recycled materials (Recycled Asphalt and Recycled Aggregates) for highways construction.
- Direct emissions decreased by 18.44 and 9.44 percent between FY 2019-20 and FY 2021-22 as a result of lower fuel usage.
- report notes a decrease in the emissions of greenhouse gases (GHG) caused by energy use, operations, transportation, and travel. 9.7% less was spent in the fiscal year 2020-21, and another 2% less was spent in the fiscal year 2021-22

Asphalt most often refers to:

- Bitumen, also known as "liquid asphalt cement" or simply "asphalt", a viscous form of petroleum mainly used as a binder in asphalt concrete.



National Highways Authority Of India:-

About NHAI:

- The National Highways Authority of India is an autonomous agency of the Government of India.
- It was set up in 1995.
- It is responsible for management of the network of National Highways in India.
- It is a nodal agency of the Ministry of Road Transport and Highways.



World Environment Day 2023: Waste dumping is polluting the Jhelum in Kashmir with microplastics

Context: A recent study by researchers from the National Institute of Technology Srinagar has revealed an alarming level of microplastics in the Jhelum River in Kashmir, mainly attributed to unscientific municipal solid waste disposal sites.



Microplastics

Microplastics, are tiny plastic particles they are defined as plastics less than five millimeters (0.2 inches) in diameter—smaller in diameter than the standard pearl used in jewelry.

There are two categories of microplastics: primary and secondary.

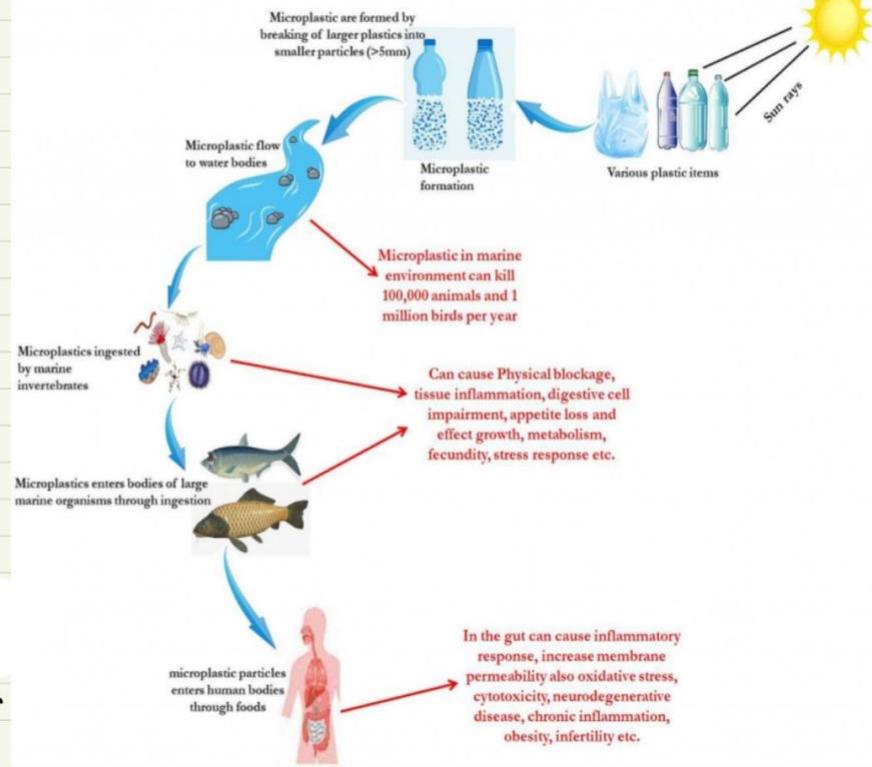


Primary microplastics are tiny particles designed for commercial use, such as cosmetics, as well as microfibers shed from clothing and other textiles, such as fishing nets.

Secondary microplastics are particles that result from the breakdown of larger plastic items, such as water bottles.

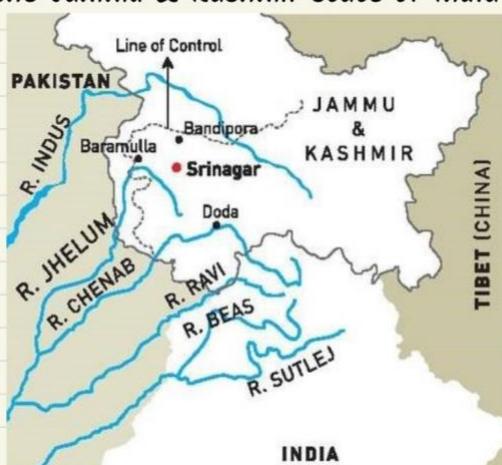
Microplastics have been detected in marine organisms from plankton to whales, in commercial seafood, in drinking water and even in human blood.

Nonplastics are plastic debris particles that are smaller than 1,000 nanometre, which is equal to one billionth of a metre.



Jhelum River

Jhelum River, also known as Vitusta. It originates from the Chashma Verinag glacier and it joins the Chenab River in Pakistan. The Jhelum River flows through the Jammu & Kashmir state of India and then enters Pakistan.



How can we transition to a low-carbon city?

Context :-

- In 2020, cities across the world dumped 29 trillion tonnes of CO₂ into the atmosphere.
- Therefore low carbon cities are crucial to mitigate the effects of climate change.

Transitioning to low-carbon economy requires to integrate mitigation and adaptation options in multiple sectors. This is called the '**sector-coupling approach**' and it is necessary to decarbonise urban systems.

Why are energy-system transitions important?

- An energy-system transition could reduce urban carbon dioxide emissions by around 74%. Therefore, the transition must focus on both the demand and supply sides.
- On the **supply side**, actions include phasing out fossil fuels, increasing the use of renewable energy sources, and employing carbon capture and storage technologies.
- On the **demand side**, the "avoid, shift, improve" framework should be adopted. This involves reducing energy and material demand, shifting to renewable alternatives, and improving energy efficiency.
- Additionally, in order to address residual emissions in the energy sector, we must implement carbon-dioxide removal (CDR) technologies.

What can be the different strategies adopted to mitigate and adapt to low-carbon cities?

ESTABLISHED CITIES: PROMOTING PUBLIC AND ACTIVE TRANSPORTATION LIKE WALKING AND CYCLING. ESTABLISHED CITIES CAN FOCUS ON MODIFYING EXISTING INFRASTRUCTURE TO IMPROVE ENERGY EFFICIENCY.

RAPIDLY GROWING CITY:

CAN AIM TO BRING WORKPLACES CLOSER TO RESIDENTIAL AREAS AND REDUCING TRANSPORT ENERGY DEMAND.

NEW AND EMERGING CITIES:

EMISSIONS REDUCTION BY IMPLEMENTING ENERGY-EFFICIENT SERVICES, ADOPTING PEOPLE-CENTRIC URBAN DESIGNS, AND ENFORCING BUILDING CODES THAT REQUIRE NET-ZERO ENERGY USE.

How can an energy transition be just?

- Energy systems are directly and indirectly linked to livelihoods, local economic development, and the socio-economic well-being of people. Hence, a one-size-fits-all approach is insufficient to ensure a socially and environmentally just transition in energy systems.
- Transitioning to renewable-energy sources could affect groups of people or communities in developing economies and sectors that depend on fossil fuels.
- Additionally, addressing issues related to land dispossession in large-scale renewable energy projects, spatial concentration of poverty, marginalization of communities, gendered impacts, etc. are important.
- Moreover, developing economies such as Nigeria, Angola, and Venezuela, which rely heavily on fossil fuel exports, may face significant economic challenges when transitioning away from these industries.

Way Forward :-

- A socially and environmentally just energy transition requires specific approaches that address the diverse situations and challenges, ensuring that no one is left behind.
- Transitioning cities to low-carbon energy systems requires efforts that consider factors such as urbanization, national contexts, and institutional capacities.
- Hence, it is important to engage multiple stakeholders in energy governance and decision-making processes.

Cyclone Biparjoy :-

CONTEXT :- Cyclone Biparjoy, which has developed into a very severe cyclonic storm over the Arabian Sea, is expected to impact the progress of the monsoon in India



What is cyclone:-

- Cyclones are rapid inward air circulation around a low-pressure area. The air circulates in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.

The conditions favourable for the formation and intensification of tropical storms are:

- Large sea surface with temperature higher than 27°C .
- Presence of the Coriolis force.
- Small variations in the vertical wind speed.
- A pre-existing weak low-pressure area or low-level cyclonic circulation.

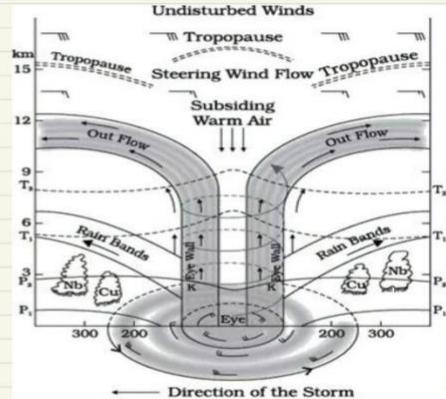


Fig: Vertical section of the tropical cyclone

Pressure System	Pressure Condition at the Centre	Pattern of Wind Direction	
		Northern Hemisphere	Southern Hemisphere
Cyclone	Low	Anticlockwise	Clockwise
Anticyclone	High	Clockwise	Anticlockwise

Table: Pattern of Wind Direction in Cyclones and Anticyclones

NOTE:- Why Arabian Sea has more cyclones ?

- Surface temperatures in the Arabian Sea have increased rapidly during the past century due to global warming. Temp. Now is $1.2\text{--}1.4^{\circ}\text{C}$ higher than the temperature witnessed four decades ago. These warmer temperatures support active convection, heavy rainfall, and intense cyclones.
- The rising temperature is also enabling the Arabian Sea to supply ample energy for the intensification of cyclones.
- The Arabian Sea is also providing conducive wind shear for cyclones

How Cyclone Biparjoy got its name?

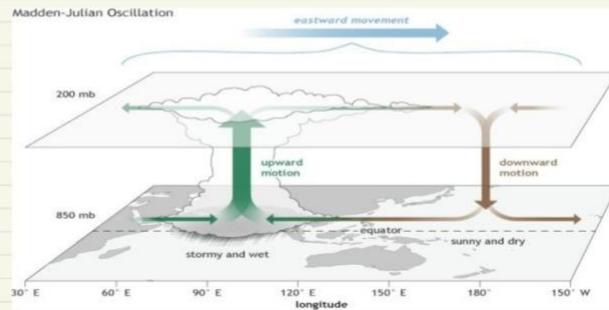
The name Biparjoy was given to the cyclone by Bangladesh. The World Meteorological Organization (WMO) names tropical cyclones in alphabetical order according to the names submitted by member countries. **Bangladesh** submitted the name Biparjoy, which means "Disaster" in Bengali.

Factors Contributing to Cyclone Biparjoy

- the prevailing warm conditions in the Arabian Sea
- weak monsoon onset
- favorable Madden Julian Oscillation (MJO) conditions in the Indian Ocean.

Madden-Julian Oscillation:-

- MJO can be defined as an eastward moving 'pulse' of clouds, rainfall, winds and pressure near the equator that typically recurs every 30 to 60 days.
- It's a traversing phenomenon and is most prominent over the Indian and Pacific Oceans.



Cyclone Mocha:-

- Cyclone Mocha that made landfall recently in Myanmar has been categorized as an Extremely Severe Cyclonic Storm
- Yemen suggested the name 'Mocha', which is supposed to be pronounced as Mokha. The cyclone has been named after a Red Sea port city known for its coffee production.

Ground Level Ozone Pollution in Delhi: CSE

Specific Finding :-

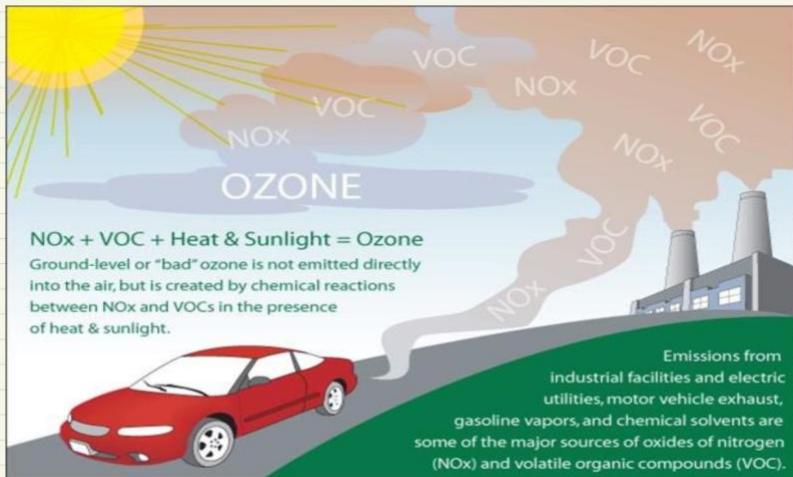
Not Specific to Seasons:

- Ozone pollution is not limited to specific seasons. Even during winter months, when cold and foggy conditions inhibit ground level ozone formation, Delhi-NCR experienced excess ozone levels.



What is **Ground-level ozone**?

- Also known as tropospheric ozone, ground-level ozone is “a colourless and highly irritating gas that forms just above the Earth’s surface (up to 2 miles above the ground).
- it’s not directly emitted into the air but rather produced when two primary pollutants react in sunlight and stagnant air. These two primary pollutants are nitrogen oxides (NO_x) and volatile organic compounds (VOCs). Therefore, ground-level ozone is called a “secondary” pollutant.
- NO_x and VOCs come from natural sources as well as human activities.
- About 95 per cent of NO_x from human activity comes from the burning of coal, gasoline and oil in motor vehicles, homes, industries and power plants.
- VOCs from human activity come mainly from gasoline combustion and marketing, upstream oil and gas production, residential wood combustion, and from the evaporation of liquid fuels and solvents.



Centre for Science and Environment (CSE)

- Non-Profit organisation
- Based in New Delhi
- Established in 1980
- CSE works as a think tank on environment-development issues in India



Canada Wildfires: How Bad It Is, Which Regions Are Hit, And Why?

Recently, smoke from wildfires in Canada spread as far as New York City causing authorities to declare air quality alerts for Toronto and Ottawa.



Places which are get affected :-

Canada

**Quebec
Nova Scotia
Toronto
Ottawa**

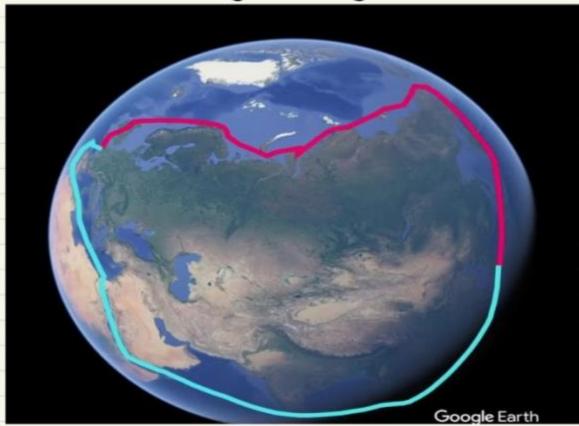
U.S.A

Rhode Island:-





The Northern Sea route: A gamechanger or a road to hegemony?



What is Northern Sea route (NSR) ?

- It connects the eastern and western parts of the Arctic Ocean.
- The NSR runs from the Barents Sea, near Russia's border with Norway, to the Bering Strait between Siberia and Alaska.
- NSR is different from the Northwest Passage which is a series of possible shipping routes connecting the Atlantic and Pacific Oceans through the Canadian Arctic.
- The entire route lies in Arctic waters and within Russia's exclusive economic zone. It is one-third of the distance of the traditional route through the Suez Canal.



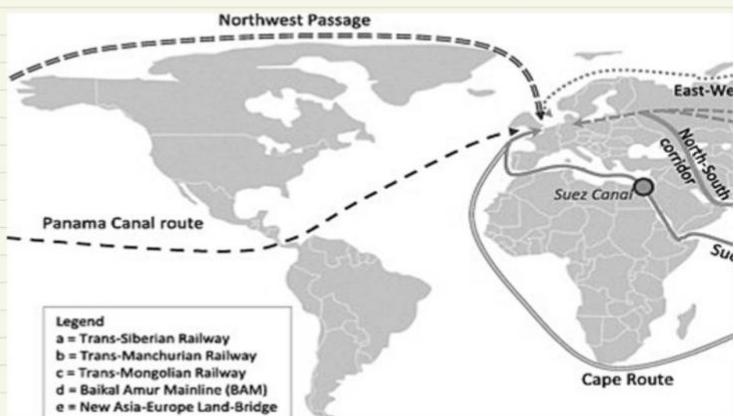
Issues with existing routes :-

- pirate attacks on ships in the Bab el-Mandeb Strait.
- In the Red Sea, Houthi militants have planted naval explosives that pose a threat to it.
- A blockade in the Strait of Malacca off the coast of Malaysia will have a 25% impact on global commerce and a 33% impact on oil trade.



Other trade route

The **Northwest Passage (NWP)** is the sea lane between the Atlantic and Pacific oceans through the Arctic Ocean, along the northern coast of North America via waterways through the Canadian Arctic Archipelago.



SUEZ Canal :-



Satellite images reveal that Spain's Doñana National Park, one of Europe's main wetlands, is at risk of drying out.



Spain's Doñana National Park

Doñana National Park in Spain. It covers 543 km² (209.65 sq mi), of which 135 km² (52.12 sq mi) are a protected area. The park is an area of marshes, shallow streams, and sand dunes in Las Marismas, the delta where the Guadalquivir River flows into the Atlantic Ocean.



Spain :-

- Spain is located in southwestern Europe occupying most (about 82 per cent) of the Iberian Peninsula.
- Its mainland is bordered by the Mediterranean Sea (except for the small British territory of Gibraltar); by France, Andorra, and the Bay of Biscay; and by the Atlantic Ocean and Portugal.



Sagar Samriddhi

Recently, the **Ministry of Ports, Shipping & Waterways (MoPSW)** has launched 'Sagar Samriddhi,' an online dredging monitoring system to accelerate the 'Waste to Wealth' initiative of the Government.



What is Sagar Samridhi?

- developed by **National Technology Centre for Ports, Waterways and Coasts (NTCPWC)**, the technological arm of MoPSW.
- improves upon the old **Draft & Loading Monitor (DLM)** system.
- aims to enhance productivity, contract management, and promotes effective reuse of dredged material.

Capabilities:

- Real time dredging progress report
- Daily and monthly progress Visualization
- Dredger performance and downtime monitoring
- Easy location track data with snapshot of loading, unloading and idle time.

What is Dredging?

- Dredging is the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies.
- The main purpose of dredging is to maintain or increase the depth of navigation channels, anchorages, and berthing areas so that larger ships can pass through and transport goods.

Are there any Guidelines related to dredging in India?

The MoPSW issued 'Dredging Guidelines for Major Ports' in 2021, which outlined the procedure for planning and preparation, technical investigations, dredged material management, estimating the cost of dredging.

National Technology Centre for Ports, Waterways and Coasts (NTCWPC) -

- It is being set up under the Shipping Ministry's flagship Sagarmala Programme.
- It works as the technology arm of the Ministry of Shipping and provides the needful technological support to ports, IWA1 and other institutions.
- Mandate — To develop cutting-edge technologies and application products to provide solutions to various challenges faced by the Ports and Shipping Sector.
- It has world-class capabilities for undertaking 2D and 3D investigations of research and consultancy nature for the Port, Coastal, and Waterway sector across all disciplines.

Places in News :-

1. Fiji (Capital: Suva)

- Fiji reconsiders security ties with China amid Pacific tensions.
- Political Boundaries: Fiji is an archipelago in the South Pacific Ocean.
 - It surrounds the Koro Sea about 1,300 miles (2,100 km) north of Auckland, New Zealand.
 - Geographical Features: The Fiji islands are largely the product of volcanic action, sedimentary deposit, and formations of coral. Of the 300 islands, about 100 are inhabited.
 - Highest point: Tomanivi Largest Island: Viti Levu ("Great Fiji").



2. Colorado river, in Grand Canyon (Arizona, USA), is losing water at an alarming rate. Grand Canyon, a deep gorge, is a product of tectonic uplift. It has been carved as Colorado River cuts down through Colorado Plateau. Oldest rock in Grand Canyon, Elves Chasm Gneiss, is part of Vishnu Basement Rocks



Note :-

A canyon is a deep, narrow valley with steep sides. Movement of rivers, weathering and erosion, and tectonic activity create canyons. Rivers of deep canyons do not meander and change their course.

Different types of canyons: Mountain-type, box, slot, Submarine Canyons etc.

- 3. Namdapha Tiger reserve Location:** Changlang district of Arunachal Pradesh.
- Namdapha is also the name of a river which originates from Daphabum and meets Noa-Dehing river.
 - It flows right across in a North-South direction of the National Park.
 - Flora:** One of the rarest and endangered orchids, the Blue Vanda. Medicinal plant Mishimi Teeta (*Copti teeta*).
 - Fauna:** Only park in the World to have the four Feline species of big cat: Tiger (*Panthera Tigris*), Leopard (*Panthera Pardus*), Snow Leopard (*Panthera Uncia*) Clouded Leopard (*Neofelis Nebulosa*).

4. Rwanda (Capital- Kigali)

- Political boundaries** It is bounded to the north by Uganda, to the east by Tanzania, to the south by Burundi, and to the west by the Democratic Republic of the Congo.
- Lying south of the Equator in east-central Africa, is often referred as 'land of a thousand hills'.
- Geographics features** Major rivers: Akagera, Akanyaru, Base, Rubyiro, Ruhwa, Rusizi, Major Lakes: Kivu, Ruhondo, and Mugesera
- Highest peak:** Mount Karisimbi.



S.Columbia (Capital: Bogotá)

- **Political boundaries:** It is a north-western South American country with a coastline on Atlantic Ocean as well as the Pacific Ocean.
- **Bordered by** Panama, Venezuela, Brazil, Peru and Ecuador.
- **Geographical features:** The Andean cordillera, one of the world's great mountain ranges, dominates the landscape of the western part of the country.
- **Important Rivers:** Amazon, Caquetá, Negro, Orinoco, Putumayo, Magdalena.



S. Cochin Port:-

- **Cochin**, an all-weather natural Port, is a major port on the Arabian Sea – Laccadive Sea – Indian Ocean sea-route in Kochi, Kerala.
- It lies on two islands in Lake of Kochi: Willingdon Island and Vallarpadam.
- International Container Transhipment Terminal, part of the Cochin Port, is the largest container transhipment facility in India.
- It is governed by Cochin Port Trust, a government of India establishment. Cochin lies beyond the cyclone zone.



LOSS OF ARCTIC SEA ICE IS INEVITABLE IN THE DECADES AHEAD

Importance of Arctic sea ice.

- Sea ice is light-coloured and therefore reflects more sunlight back to space than liquid water, thus playing a vital role in keeping polar regions cool and maintaining earth's energy balance.
- Sea ice also keeps the air cool by forming a barrier between cold air above and relatively warmer water below. Changes in sea ice can affect biodiversity and impact mammals such as polar bears and walruses.
- It also affects traditional subsistence hunting lifestyle of indigenous populations such as Yup'ik, Inupiat, and Inuit.

Sunflower Seed



Sunflowers are native primarily to North and South America.
The leaves are used as fodder, the flowers yield a yellow dye.
Sunflower oil cake is used for stock and poultry feeding.
These seeds have very high oil content, they are one of the main sources used to produce polyunsaturated oil.
Sunflower oil ranks as the fourth most produced oil in world.
Benefits of seeds: Excellent source of essential fatty acids, vitamins, and minerals. They are anti-inflammatory, antifungal, antibacterial, wound healing.

Kari Ishad mango

Kari Ishad mango from Uttara Karnataka has earned GI tag.

Kari Ishad mango is grown predominantly around Ankola. It is grown in Karwar and to a certain extent in Kumta of Uttara Karnataka.

Features: unique aroma, luscious taste, high amount of pulp. Ishad mango has two variants — Kari Ishad, which has thin skin, more pulp and is sweeter, and Bili Ishad, which has thick skin and has less pulp and sweetness.



Bagh Print :-

Bagh Print of Dhar is a traditional hand block print made mostly on cotton fabric. Its name is derived from the village Bagh on the banks of the Baghini River. Vegetable colours of red and black over a white background is used It has been awarded Geographical Indications (GI) tag.



Species in news :-

Fruit fly (*Drosophilamelanogaster*)



- Just like mosquitoes, they belong to Diptera, the group of insects that have only two wings.
- Fruit fly remains one of the most commonly used model organisms for biomedical science.
- Their rapid reproduction (one generation in about ten days; about 100 eggs per female per day) makes research fast, cost-effective and extremely versatile.
- Many plants (including the cacao) rely on Diptera as pollinators.

THE HINDU ANALYSIS

15TH JUNE 2023

Credits : Deepak Yadav Sir



Topics Discussed Today

1)	RAMGARH VISDHARI TIGER RESERVE
2)	LAW COMMISSION OF INDIA
3)	UNIFORM CIVIL CODE
4)	PVTGS
5)	FINANCE COMMISSION
6)	INTEGRATED CHILD DEVELOPMENT SERVICES SCHEME
7)	RISE IN CHILD LABOUR
8)	DIGITAL NEWS REPORT 2023

Daily Mapping Question - Ramgarh Vishdhari Tiger Reserve



Why in News

- On May 16, 2022, Union Environment Minister Bhupender Yadav informed that a notification has been issued to declare the Ramgarh Vishdhari Sanctuary in Bundi district of Rajasthan as the 52nd tiger reserve in the country.

Key Points

- After the notification, Ramgarh Vishdhari sanctuary has become the fourth tiger reserve of Rajasthan. At present, There are Ranthambore, Sariska and Mukundara Hills Tiger Reserves in Rajasthan.
- The National Tiger Conservation Authority (NTCA) had accorded 'in-principle' approval for creation of Ramgarh Vishdhari Wildlife Sanctuary and adjoining areas as tiger reserves on July 5, 2021 under the provision of Section 38 of the Wildlife (Protection) Act, 1972.
- In order to accord the approval granted by NTCA, an Expert Committee was constituted by the State Government for identification of Critical Tiger Habitat (Core) and Buffer Area of Ramgarh Vishdhari Tiger Reserve.
- A report was submitted by the Committee to the State Government on 24th January, 2022 for determination of the core and buffer area of Ramgarh Vishdhari Tiger Reserve, District Bundi.
- It may be mentioned that the newly notified Ramgarh Vishdhari Tiger Reserve includes habitat of tigers between Ranthambore Tiger Reserve in the Northeast and Mukundara Hills Tiger Reserve in the south.
- The Government of Rajasthan declared it a sanctuary under Section 5 of the Rajasthan Wildlife and Bird Protection Act, 1951 on 20th May, 1982.
- Apart from tiger conservation, this sanctuary is also famous for the ecosystem as well as floral species. The sanctuary has 500 types of wildlife including Indian wolf, leopard, striped woodpecker, cheetal, sambhar, sloth bear, golden jackal, chinkara, nilgai, fox, wild cats, langur, snake, crocodile.

UPSC PYQ - 2017

Q- The terms ‘Event Horizon’, ‘Singularity’, ‘String Theory’ and ‘Standard Model’ are sometimes seen in the news in the context of

- (a) Observation and understanding of the Universe
- (b) Study of the solar and the lunar eclipses
- (c) Placing satellites in the orbit of the Earth
- (d) Origin and evolution of living organisms on the Earth

Answer

Answer is A



Context :- Retired High Court Chief Justice Rituraj Awasthi has been appointed as the chairperson of the 22nd law commission of India which was constituted in 2020.

Law Commission of India

About:

The Law Commission of India is a non-statutory body constituted by the Government of India from time to time.

The first Law Commission of independent India was established in 1955 for a three-year term.

The first Law Commission was established during the British Raj era in 1834 by the Charter Act of 1833 and was chaired by Lord Macaulay.

Objectives:

It works as an advisory body to the Ministry of Law and Justice.

The Law Commission undertakes research in law and review of existing laws in India for making reforms therein and enacting new legislations on a reference made to it by the Central Government or suo-motu.

Composition:

Apart from having a full-time chairperson, the commission will have four full-time members, including a member-secretary.

Law and Legislative Secretaries in the Law Ministry will be the ex-officio members of the commission.

It will also have not more than five part-time members.

A retired Supreme Court judge or Chief Justice of a High Court will head the Commission.

Important Recommendations of the Commission

The Law Commission in its 262nd Report recommended abolition of the death penalty for all crimes except terrorism-related offences and waging war against the state.

Its report on electoral reforms (1999) had suggested simultaneous Lok Sabha and state assembly elections to improve governance and stability.

The Criminal Procedure (Identification) Act, 2022 which replaced the Identification of Prisoners Act, 1920 was also proposed by the Law Commission of India.

The 21st Law commission in its recommendation in 2018 said that Uniform Civil Code (UCC) is “neither necessary nor desirable at this stage”.

Now, the center has requested the 22nd Law Commission of India to undertake an examination of various issues relating to the same.

Uniform Civil Code



GS Paper - 2

Fundamental Rights

Directive Principles of State Policy

Issues Related to Women

About:

UCC is one that would provide for one law for the entire country, applicable to all religious communities in their personal matters such as marriage, divorce, inheritance, adoption etc.

Article 44 of the Constitution lays down that the state shall endeavour to secure a UCC for the citizens throughout the territory of India.

Article 44 is one of the Directive Principles of State Policy (DPSP).

DPSP as defined in Article 37, are not justiciable (not enforceable by any court) but the principles laid down therein are fundamental in governance.

Status of Uniform Codes in India:

Indian laws do follow a uniform code in most civil matters such as Indian Contract Act 1872, Civil Procedure Code, Transfer of Property Act 1882, Partnership Act 1932, Evidence Act, 1872 etc.

States, however, have made hundreds of amendments and, therefore, in certain matters, there is diversity even under these secular civil laws.

Background:

The origin of the UCC dates back to colonial India when the British government submitted its report in 1835 stressing the need for uniformity in the codification of Indian law relating to crimes, evidence, and contracts, specifically recommending that personal laws of Hindus and Muslims be kept outside such codification.

Increase in legislation dealing with personal issues in the far end of British rule forced the government to form the B N Rau Committee to codify Hindu law in 1941.

In order to bring uniformity, the courts have often said in their judgements that the government should move towards a UCC.

The judgement in the Shah Bano case (1985) is well known.

Another case was the Sarla Mudgal Case (1995), which dealt with issue of bigamy and conflict between the personal laws existing on matters of marriage.

Implications of Uniform Civil Code on Personal Laws:-

Simplification of Laws:

The code will simplify the complex laws around marriage ceremonies, inheritance, succession, adoptions making them one for all. The same civil law will then be applicable to all citizens irrespective of their faith

Adhering to Ideal of Secularism:

Secularism is the objective enshrined in the Preamble, a secular republic needs a common law for all citizens rather than differentiated rules based on religious practices.

Gender Justice:

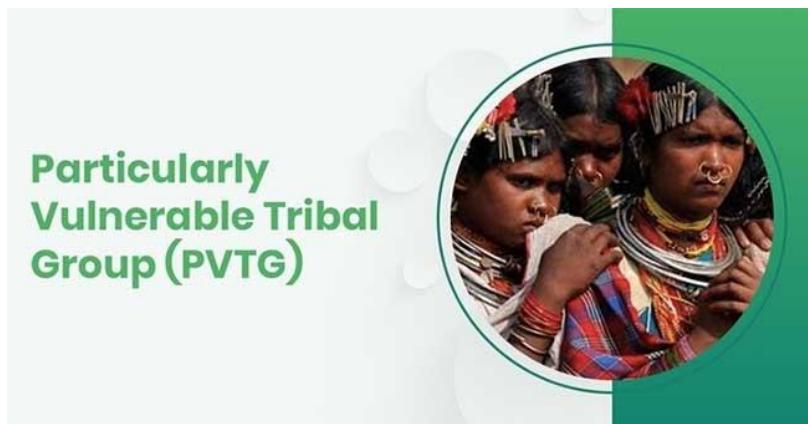
If a UCC is enacted, all personal laws will cease to exist. It will do away with gender biases in existing laws.

Challenge

Constitutional Hurdle:

Article 25 of Indian constitution, that seeks to preserve the freedom to practise and propagate any religion gets into conflict with the concepts of equality enshrined under Article 14 of Indian Constitution.

Particularly Vulnerable Tribal Groups (PVTGs):



GS Paper - 2

Issues Related to SCs & STs

Government Policies & Interventions

Health

Creation of Primitive Tribal Groups (PTGs): In 1973, the Dhebar Commission created Primitive Tribal Groups (PTGs) as a separate category, which are less developed among the tribal groups.

In 2006, the Government of India renamed the PTGs as PVTGs.

In 1975, the Government of India initiated to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups. In 1993 an additional 23 groups were added to the category, making it a total of 75 PVTGs out of 705 Scheduled Tribes.

Among the 75 listed PVTG's the highest number are found in Odisha.

Characteristics of PVTGs: The Government classifies PVTGs on their:

Stagnant or declining population,
Low levels of literacy,
Absence of written language,
Pre-agricultural stage of economy, such as hunting, food gathering, shifting cultivation and terrace cultivation

UPSC PYQ - 2019

Consider the following statements about Particularly Vulnerable Tribal Groups (PVTGs) in India:

PVTGs reside in 18 States and one Union Territory.

A stagnant or declining population is one of the criteria for determining PVTG status.

There are 95 PVTGs officially notified in the country so far.

Irular and Konda Reddi tribes are included in the list of PVTGs.

Which of the statements given above are correct?

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

Answer ↗

Ans: (c)

75 tribal groups have been categorized by Ministry of Home Affairs as Particularly Vulnerable Tribal Groups (PVTGs). PVTGs reside in 18 States and the Union Territory of Andaman and Nicobar Islands. Hence, statement 1 is correct and statement 3 is not correct.

The criteria followed for determination of PVTGs are a pre-agriculture level of technology, a stagnant or declining population, extremely low literacy, and a subsistence level of the economy. Hence, statement 2 is correct.

Irular (Tamil Nadu) and Konda Reddi (Andhra Pradesh) tribes are included in the list of PVTGs. Hence, statement 4 is correct

Pradhan Mantri PVTG Development Mission: (PM PVTG)

The mission will be launched as part of 'Reaching The Last Mile', one of the seven Saptarishi priorities enlisted in this year's Budget.

The mission will saturate the particularly vulnerable tribal groups with safe housing, clean drinking water, education, nutrition, road and telecom connection and livelihood.

A Budget of Rs 15,000 crore will be dedicated to this mission in the next three years.

The scheme will benefit 3.5 lakh tribals.

Saptarishi priorities (seven priorities) enlisted in the 2023-24 budget:

Inclusive Development

Reaching the Last Mile

Infrastructure and Investment

Unleashing the Potential

Green Growth

Youth Power

Financial Sector

Who are PVTG (Particularly Vulnerable Tribal Groups) ?

PVTGs are more vulnerable among the tribal groups who are in need of greater support and development.

Out of the 705 Scheduled Tribes in India, 75 have been identified as PVTGs and are spread across 17 states and one Union Territory.

Government of India follows the following criteria for identification of PVTGs

Pre-agricultural level of technology

Low level of literacy

Economic backwardness

A declining or stagnant population.

In 1975, the Government of India initiated to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups.

An additional 23 groups were added to the category in 1993.

Some Examples: Cholanaikayan (Kerala), Kathodi (Gujarat), Jarawas (Andaman & Nicobar Islands), Koraga (Karnataka)

Editorial Analysis

The next Finance Commission will have a tough task



Context :- The government will appoint a Finance Commission in the next few months to determine how much of the Centre's tax revenue should be given away to States (the vertical share) and how to distribute that among States (the horizontal sharing formula).

In the pre-reform period, the Finance Commission recommendations were not that critical because the Centre had other ways to compensate States, or indeed to play favourites, through plan financing and public sector undertaking (PSU) investments. Post-reforms, fresh PSU investments have thinned out and the Planning Commission was abolished in 2014 with the result that the Finance Commission remains virtually the sole architect of India's fiscal federalism. Its responsibility and influence are, therefore, much larger.

Issue will be about horizontal distribution

Currently, the Centre gives away 41% of its tax pool to the States. For sure, States will demand that this proportion be raised, but I do not see much room for stretching this further given the Centre's expenditure needs and the constraints on its borrowing limit. Therefore, much of the debate will centre on the horizontal distribution formula.

When the previous Finance Commission was appointed in 2017, its terms of reference became quite contentious because it was asked to take into account the 2011 population figures in determining the expenditure needs of a State. This was a departure from the standard practice until then of mandating Finance Commissions to use the 1971 population numbers so as not to give a perverse incentive to States to neglect family planning with an eye on a higher share of devolution.

States which had done well in stabilising population growth rates, typically the southern States, protested against this change in the base year, calling it a 'penalty for good performance'.

A similar conflict arises with regard to revenue deficit grants that the Finance Commission awards to States which remain in deficit on the current account even after tax devolution. In theory, revenue deficit grants have a neat rationale — that every State in a country should be able to provide a minimum level of service to its residents even if it involves an element of cross-subsidisation. The worry is that this too has become a perverse incentive. Why bother raising revenues on your own when the Finance Commission will compensate you?

Historically, Finance Commissions have struggled to determine how much a State's deficit is due to its fiscal incapacity and how much is due to fiscal irresponsibility. They have tried to tweak the distribution formula to support deficit States without penalising responsible States, a mathematically impossible task since you cannot give more to a State without giving less to another. The net result is that every horizontal distribution formula has been criticised as being inefficient or unfair or both.

These faultlines across States have in fact deepened in recent years along political, economic and fiscal dimensions. When the Bharatiya Janata Party (BJP) lost the Karnataka election last month, many political commentators read that as a north-south divide, with the BJP being confined to the northern States while the Opposition parties rule the southern States. Similarly, many headline numbers suggest that the southern States of the country are doing better in terms of infrastructure, private investment, social indicators and the rule of law, which has put them on a virtuous cycle of growth and prosperity and widened the north-south gap.

The bottom-line though is that it is in the very nature of horizontal distribution that richer States compensate poorer States. How to ensure that this happens without deepening the divide will challenge the government in defining the terms of reference of the Finance Commission, and of the Finance Commission itself in delivering on those terms of reference.

Cesses and surcharges

The terms of reference of the Finance Commission enjoin it to take into account the expenditure needs and revenue earning capacity of the Centre and States. I believe the forthcoming Finance Commission should use this leverage to focus on two issues in particular.

The first is the egregious practice by the Centre of increasingly resorting to a levy of cesses and surcharges rather than raising taxes. A white paper released by the Tamil Nadu government a couple of years ago pointed out that the proportion of cesses and surcharges in the Centre's total tax revenue had nearly doubled from 10.4% in 2011-12 to 20.2% in 2019-20.

There is a perverse incentive in operation here. The straightforward option for raising revenues is to raise taxes, but if the Centre does that, it has to part with 41 paise to States. On the other hand, if it raises the additional rupee by way of a surcharge, it gets to keep all of it.

The next Finance Commission should lay down guidelines for when cesses and surcharges might be levied, and also suggest a formula to cap the amount that can be raised.

Restraint on freebies

The second issue of focus for the Finance Commission should be government spending on what has come to be called freebies. All political parties are guilty on this count, some more than others, but trying to apportion blame will be a wrong start.

In a poor country, where millions of households struggle for basic human needs, it sounds cruel to argue against safety-nets for the poor. But it is precisely because India is a poor country, that we need to be more circumspect about freebies.

In theory, the restraints imposed by the Fiscal Responsibility and Budget Management (FRBM) Act should have acted as a check on such populist spending, but governments have found ingenious ways of raising debt without it appearing in the budget books. It is not easy to unambiguously define a freebie, and any check on this will be contested as infringing on the sovereignty of elected governments. Nevertheless, the next Finance Commission should bite the bullet in the interest of long-term fiscal sustainability and lay down guidelines on the spending on freebies.

Editorial Analysis

Strengthening the Integrated Child Development Services scheme

Context :- Notwithstanding contention regarding the assessment methods of various global surveys, it is true that India's high prevalence of stunting, wasting, and anaemia continues to pose public health risks for children and women. India must strengthen its existing social sector schemes, such as the Integrated Child Development Services (ICDS), to tackle this. The ICDS targets children aged 0-6 years, pregnant women, and lactating mothers; addresses non-formal pre-school education; and breaks the cycle of malnutrition, morbidity, and mortality.

What studies show

Empirical research highlights the correlation between early-life poverty, malnutrition, and inadequate stimulation, and later cognitive and economic challenges. Studies have shown that interventions focusing on nutrition, education, and health during early childhood can significantly improve human capital, particularly in developing countries.

A study published in World Development demonstrated the ICDS's positive impact on cognitive achievements, especially among girls and those from economically disadvantaged families. Another peer-reviewed study in The University of Chicago Press Journals found that children who were exposed to ICDS during the first three years of life completed 0.1-0.3 more grades of schooling than those who were not.

In a study published in the Natural Library of Medicine, it was found that adolescents aged 13-18, who born in villages with proper ICDS implementation, showed a 7.8% increased likelihood of school enrolment and completed an average of 0.8 additional grades compared to their peers who did not have access to the ICDS.

As we commend the remarkable strides made by ICDS, it is imperative to acknowledge the pressing need for a thorough reassessment of our approaches. Despite four decades of relentless efforts, the ICDS still faces the herculean task of ameliorating the nutritional and health outcomes for children aged 0-6 years.

A significant first step towards fortifying the programme is to empower Anganwadi workers. Though the cornerstone of the ICDS, they are frequently stretched beyond their limits. As principal operatives in the Poshan 2.0 initiative, these workers bear the onus of advancing child nutrition, health, and education in their communities. Their roles vary widely from employing modern technology, like smartphones and applications, to practical tasks such as delivering health education, managing feeding programmes, and liaising with auxiliary nurse midwives and other healthcare professionals.

Advantages of more workers

An additional Anganwadi worker could be added to each of India's 13,99,661 Anganwadi centers to lessen the load of these workers. Implementing this approach could yield at least five advantages. First, it would lead to better health and educational outcomes.

Second, children who remained enrolled also exhibited reduced rates of child stunting and severe malnutrition.

Third, the cost of a nationwide roll-out of this model is relatively insignificant in comparison to the potential advantages it offers. The estimated long-term benefits, based on expected improvements in lifetime earnings, would be around 13 to 21 times the expenses.

Fourth, the new Anganwadi worker can be given the responsibility of concentrating only on preschool and early childhood education. This would allow existing workers to dedicate more time to child health and nutrition. It would also enable the Anganwadi workers to expand their outreach and serve a larger number of families.

Fifth, apart from improving the well-being of rural communities, this would create job opportunities for local residents, particularly women. It would lead to the creation of 1.3 million new jobs for women across India.

The operationalisation of the Saksham Anganwadi and Poshan 2.0 proposal hinges on its status as a Centrally Sponsored Scheme. State governments oversee its execution, including administration, management, and monitoring. Consequently, Anganwadi worker recruitment falls under their jurisdiction, guided by regulations and region-specific criteria. This decentralised approach promotes tailored, efficient implementation. The Government of India provides funds for Anganwadi workers' and helpers' honorariums on a cost-sharing basis.

Apart from this, the data have shown a significant variation in implementation of the ICDS and the level of skills of Anganwadi workers. This requires further investments in the training programme. Additionally, the exigency for infrastructural improvement in India's Anganwadi centers cannot be overstated. A disconcerting 2.5 lakh centres operate without functional sanitation facilities and 1.5 lakh centres lack access to potable water. Approximately 4.15 lakh Anganwadi centers do not possess their own pucca building.

Conclusion:-

To unlock the ICDS' full potential and address persistent issues, it is essential to revisit and re-evaluate its strategies and implementation. Empowering Anganwadi workers is just a start.

Integrated Child Development Scheme

What is ICDS?

About:

The Umbrella ICDS is a centrally sponsored scheme implemented by the Ministry of Women and Child Development. It was launched in 1975.

What are the Schemes Under the ICDS?

Anganwadi Services Scheme:

It is a unique programme for early childhood care and development.

The beneficiaries under the Scheme are children in the age group of 0-6 years, pregnant women and lactating mothers.

It provides a package of six services namely supplementary nutrition, pre-school non-formal education, nutrition & health education, immunisation, health check-up and referral services.

Supplementary Nutrition includes Take Home Ration (THR), Hot Cooked Meal and morning snacks and holds importance for many vulnerable households as it impacts the nutritional outcome of the children.

Pradhan Mantri Matru Vandana Yojana:

It provides cash incentive amounting to Rs.5,000/- in three instalments directly to the Bank/Post Office Account of Pregnant Women and Lactating Mother (PW&LM) in DBT (Direct Benefit Transfer) Mode during pregnancy and lactation in response to individual fulfilling specific conditions.

National Creche Scheme:

It provides day care facilities to children of age group of 6 months to 6 years of working women.

The facilities are provided for seven and half hours a day for 26 days in a month.

Children are provided with supplementary nutrition, early childcare education, and health and sleeping facilities.

Scheme for Adolescent Girls:

It aims at out of school girls in the age group 11-14, to empower and improve their social status through nutrition, life skills and home skills.

The scheme has nutritional and non nutritional components which include nutrition; iron and folic acid supplementation; health check up and referral service; nutrition and health education; mainstreaming out of school girls to join formal schooling bridge course/ skill training; life skill education, home management etc.; counselling/ guidance on accessing public services.

Child Protection Scheme:

It aims to contribute to the improvement and well-being of children in difficult circumstances, as well as, reduction of vulnerabilities to situations and actions that lead to abuse, neglect, exploitation, abandonment and separation of children from parents.

POSHAN Abhiyaan:

It targets to reduce the level of stunting, under-nutrition, anaemia and low birth weight babies by reducing mal-nutrition/undernutrition, anaemia among young children as also, focus on adolescent girls, pregnant women and lactating mothers.

What are the Major Objectives of ICDS?

To improve the nutritional and health status of children in the age-group 0-6 years.

To lay the foundation for proper psychological, physical and social development of the child.

To reduce the incidence of mortality, morbidity, malnutrition and school dropout.

To achieve effective coordination of policy and implementation amongst the various departments to promote child development.

To enhance the capability of the mother to look after the normal health and nutritional needs of the child.

To facilitate, educate and empower Adolescent Girls (AGs) so as to enable them to become self-reliant and aware citizens.

Rise in Child Labour

Context :- The Covid-19 pandemic brought the world to its knees and exposed multiple fault-lines in the healthcare, education, economic, and job-related sectors. India has not been immune to this devastation. As per the official statistics around 5,31,843 deaths have been reported from India to the WHO.

But it is among the marginalised sections of society, especially women and children, that the effect of the pandemic has been deep and long lasting. Households that were surviving in poor economic conditions were pushed to the brink of poverty. These conditions have exacerbated the social inequities and have exposed women and children to abuse, violence and lack of security.

A 2022 report by UNICEF and International Labour Organization (ILO) said that as Covid has put children at risk of child labour globally, the number of child labour cases were expected to rise by 8.9 million by the end of 2022. As per the US Department of Labour, disruption in supply chains has thrust people into unemployment leading to an increase in poverty.

What does the Data say about Child Labour in India?

According to the last available Census 2011, there were 10.1 million child labourers in India.

As per the National Crime Records Bureau Report 2022, in 2021, around 982 cases were registered under the Child Labour (Prohibition and Regulation) Act, 1986, with the highest number of cases registered in Telangana, followed by Assam.

Aide et Action's study in India on the impact of COVID-19 on migrant children revealed a two-fold increase in the number of children who accompanied their working parents to the brick-making industry after the first wave COVID-19 pandemic.

According to a study by Campaign Against Child Labour (CACL), there has been a significant increase in the proportion of working children from 28.2% to 79.6% out of the 818 children who were surveyed, mainly because of the COVID-19 pandemic and closure of schools.

According to a new report by the International Labour Organization (ILO) and UNICEF, the number of children in child labour has risen to 160 million worldwide with millions more at risk due to the impacts of COVID-19.

India's biggest child labour employers are – Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, and Maharashtra.

What are the Prominent Causes of Child Labour in India?

Poverty: Many families are unable to afford the basic needs of life and send their children to work instead of school. Poverty also forces some children to work as bonded labourers or migrate to other places in search of work.

Social norms: Some communities and families have a tradition of making their children work in certain occupations, such as agriculture, carpet weaving, or domestic service. Some also believe that education is not important or suitable for girls.

Lack of decent work opportunities for adults and adolescents: Due to the high unemployment rate and low wages, many adults and young people are unable to find decent and dignified work. This leads them to engage in informal and hazardous work or push their children into labour.

Poor School Infrastructure: Many schools in India lack adequate facilities, teachers, and quality education. Some schools also charge fees or other expenses that are unaffordable for poor families. These factors discourage parents from sending their children to school and make them drop out.

Emergencies: Natural disasters, conflicts, and pandemics can disrupt the normal functioning of society and increase the vulnerability of children. Some children may lose their parents, homes, or access to basic services. They may be forced to work for survival or be exploited by traffickers and other perpetrators.

How has the Covid Pandemic aggravated the issue of Child Labour?

Fall in Living Standards: The pandemic has caused economic insecurity, unemployment, poverty and hunger for many families, forcing children to work for survival.

Loss of Guardianship: The pandemic claimed many lives, leaving numerous children without parents. As a consequence, some of these children were compelled to engage in child labor.

Deteriorating Employment Opportunities: The disruption in supply chains, trade and foreign investment has reduced the demand for labour and income opportunities for adults, making children more vulnerable to exploitation.

Rise in Informality: The pandemic has increased the share of informal workers who lack social protection, decent working conditions and access to health care. Children are often employed in informal sectors such as agriculture, domestic work, street vending, mining and construction.

Migration: Economic hardships and disruptions caused by the pandemic may have resulted in increased migration, both internal and cross-border. Migrant children, particularly those who are unaccompanied or separated from their families, have been more susceptible to exploitation and forced labor.

Temporary School Closures: The pandemic has disrupted the education of millions of children, especially those who lack access to online learning or face barriers such as lack of electricity, devices or internet. School closures increased the risk of dropouts, early marriages, teenage pregnancies and child labour.

What is the Socio-Economic Impact of Child Labour?

Reduced Human Capital Accumulation: Child labor diminishes children's ability to accumulate skills and knowledge, affecting their future productivity and income.

Perpetuation of Poverty and Child Labour: Child labor lowers wages for unskilled work, contributing to the cycle of poverty and continued child labor.

Impaired Technological Progress and Economic Growth: Child labor hampers technological advancements and innovation, slowing down long-term economic growth and development.

Deprivation of Rights and Opportunities: Child labor deprives children of their rights to education, health, protection, and participation, limiting their future opportunities and social mobility.

Undermined Social Development and Cohesion: Child labor weakens social development and cohesion within a country, impacting stability and democracy.

Negative Health Impacts: Child labor exposes children to hazards, physical injuries, diseases, abuse, and exploitation, adversely affecting their physical and mental well-being, mortality rates, and life expectancy.

Initiatives have been taken by the Government to Curb Child Labour

What more should be done to Address the issue?

Strengthening the Legal Framework and its Enforcement: The government should enact and amend laws that prohibit and regulate child labour, in line with the international standards and conventions.

It should also ensure that the laws are effectively implemented and enforced, by allocating adequate resources, capacity, coordination, data, accountability and political will.

The penalties for violating the child labour laws should be severe and consistent.

Providing Social Protection and Economic Support: The government should provide comprehensive social protection and economic support to poor and vulnerable families, to prevent them from resorting to child labour as a coping mechanism.

This could include regular cash transfers, subsidies, pensions, health insurance, food security, etc.

The government should also facilitate access to credit, savings, microfinance and other livelihood opportunities for poor households.

Ensuring Universal and Quality Education: The government should ensure that all children have access to free and compulsory education up to the age of 14 years, as per the Right to Education Act 2009 and Article 21A of the Constitution.

It should also improve the quality, relevance, safety and inclusiveness of education, by providing adequate infrastructure, teachers, curriculum, materials, scholarships, etc.

It should also follow up with children who drop out or do not enrol in school, and provide them with bridge education, vocational training or alternative learning opportunities.

Raising Awareness and Mobilizing Action: The government should collaborate with civil society organizations, media, corporations and citizens to raise awareness about the harmful effects of child labour and the importance of child rights.

It should also mobilize action and support for the initiatives against child labour, by creating platforms, campaigns, networks, coalitions, etc.

The role of Panchayats can also be explored for raising awareness.

Responding to Emergencies and Crises: The government should prepare for and respond to emergencies and crises that may increase the risk of child labour, such as conflicts, disasters, pandemics or economic shocks.

It should provide humanitarian assistance and protection to affected children and families, such as food, water, shelter, health care, psychosocial support, etc.

It should also ensure the continuity of education and social protection services during and after the crises.

Initiatives have been taken by the Government to Curb Child Labour

Right to Education Act (2009): It added Article 21A to the Constitution which recognizes education as a fundamental right of every child and provides for free and compulsory education to all children aged 6 to 14 years.

Child Labour (Prohibition and Regulation) Act (1986): Bans the employment of children below 14 years and adolescents below 18 years in hazardous occupations and processes..

The Factories Act (1948): Prohibits the employment of children below 14 years of age in any hazardous environment and restricts the working hours and conditions of adolescents (14 to 18 years) who are allowed to work only in non-hazardous processes.

National Policy on Child Labour (1987): Aims to eradicate child labour by prohibiting and regulating it, providing welfare and development programmes for children and their families, and ensuring the education and rehabilitation of working children.

National Child Labour Project (NCLP) Scheme: It seeks to provide non-formal education, vocational training, mid-day meal, stipend and health care to the rescued children and then mainstream them into formal schooling system.

Pencil Portal: The platform aims at engaging the Central Government, State Government, District, civil society and the public in eradicating child labour to achieve the target of a child labour free society. It was launched by the Ministry of Labour and Employment.

Ratifying conventions of the International Labour Organization: India has also ratified two core conventions of the International Labour Organization on child labour in 2017.

The Minimum Age Convention (1973) - No. 138: This convention requires States party to set a minimum age under which no one shall be admitted to employment or work in any occupation. The minimum age should not be less than

the age of completion of compulsory schooling and, in any case, not less than 15 years. However, developing countries may initially specify a minimum age of 14 years.

Digital News Report 2023

Context :- Recently, Digital News Report 2023 was released by Reuters Institute.

The Reuters Institute for the Study of Journalism is dedicated to exploring the future of journalism worldwide through debate, engagement, and research

Key Highlights of the Report

Trust Issue:

People are trusting news content less and less.

Decline in Traditional News Media:

Consumption of traditional news media declined in nearly all the countries surveyed.

Increase in Consumers who Avoid News:

The proportion of news consumers who avoid news has risen sharply across countries, with the report describing the phenomenon as “selective avoidance”.

Growth in Digital Subscription:

Despite small increases in the proportion of people willing to pay for online news (mostly in richer countries), the growth in digital subscriptions for news content seems to be leveling off.

Access Way:

The smartphone has become the dominant way in which most people first access news in the morning.

While Facebook remained the most-used social network for news, it is TikTok that has become the fastest-growing network, reaching 40% of 18-24-year-olds, with 15% using the platform for news.

What is ‘Selective Avoidance’ of News?

About:

Even though the majority of people remain engaged with news, the report finds that a growing minority are increasingly rationing or limiting their exposure.

The report calls this behavior “selective avoidance”.

The avoidance of news has doubled in Brazil (54%) and the U.K. (46%) since 2017.

Reasons for the Avoidance:

Due to the repetitiveness of the news agenda — especially around politics and Covid-19 (43%)

Trust issues (29%)

Negative effects on mood (36%)

Leads to arguments (17%)

Led to feelings of powerlessness (6%)

No time for news (14%)

Hard to understand (8%)

What about Preferred Modes of News Consumption?

Across markets and age groups, text is still king when it comes to news consumption.

However, younger audiences were more likely to say they watch the news.

In India, 58% mostly read the news while 17% mostly watch it.

What about the Main Gateway to News?

Smartphone being the preferred mode of access, direct access to apps and websites were becoming less important over time, giving ground to social media, which is becoming more important as a gateway to news due to its ubiquity and convenience.

At an aggregate level, with social media preference (28%) surging ahead of direct access (23%)” notes the report.

What about the Trends in India?

India is a strongly mobile-focused market.

72% of the survey respondents accessed news through smartphones and 35% did so via computers.

Also, 84% of the Indian respondents sourced news online, 63% from social media, 59% from television, and 49% from print.

YouTube (53%) and WhatsApp (51%) were the top social media platforms for sourcing news.

THE HINDU ANALYSIS

16TH JUNE 2023

CREDIT : DEEPAK YADAV SIR



TOPICS DISCUSSED TODAY

1)	Anak krakatoa Volcano
2)	Cyclone
3)	BIMSTEC
4)	MQ-9 Reaper
5)	Pokkali Rice
6)	NIRF
7)	Non-Communicable Diseases
8)	POCSO

Daily Mapping Question - Anak Krakatoa Volcano



It has erupted, sending ash up to **3 kilometres into the air**. The volcano, located in the **Sunda Strait** between **Java and Sumatra islands**, erupted in 2018 that caused a deadly tsunami. Anak Krakatau, which means “**child of Krakatau**,” is the offspring of the famous Krakatau, whose monumental eruption in **1883 triggered a period of global cooling**.

Indonesia is a country in **Southeast Asia and Oceania** between the Indian and Pacific oceans. It consists of over **17,000 islands**, including Sumatra, Java, Sulawesi, and parts of Borneo and New Guinea. Indonesia is prone to volcanoes due to its location on the Pacific Ring of Fire, where **several tectonic plates meet**.

Key facts about the Sunda Strait

The **Sunda Strait** is the strait between the Indonesian islands of **Java and Sumatra**.

It connects the Java Sea to the **Indian Ocean**. Numerous volcanic islands lie in the strait.

What is a Cyclone?

Cyclones are rapid inward air circulation around a low-pressure area. The air circulates in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.

Cyclones are usually accompanied by violent storms and bad weather.

The word Cyclone is derived from the Greek word Cyclos meaning the coils of a snake. It was coined by Henry Peddington because the tropical storms in the Bay of Bengal and the Arabian Sea appear like coiled serpents of the sea.

There are two types of cyclones:

Tropical cyclones;

Extra Tropical cyclones (also called Temperate cyclones or middle latitude cyclones or **Frontal cyclones** or Wave Cyclones).

Tropical cyclones develop in the region between the Tropics of Capricorn and Cancer.

Extra tropical cyclones occur in temperate zones and high latitude regions, though they are known to originate in the Polar Regions

How are Names of Cyclones Decided?

Cyclones that form in every ocean basin across the world are named by the regional specialised meteorological centres (RSMCs) and Tropical Cyclone Warning Centres (TCWCs). There are six RSMCs in the world, including the India Meteorological Department (IMD), and five TCWCs.

In 2000, a group of nations called WMO/ESCAP (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), which comprised Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand, decided to start naming cyclones in the region. After each country sent in suggestions, the WMO/ESCAP Panel on Tropical Cyclones (PTC) finalised the list.

The WMO/ESCAP expanded to include five more countries in 2018 — Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.

What are the guidelines to adopt names of cyclones?

While picking names for cyclones, here are some of the rules that countries need to follow. If these guidelines are followed, the name is accepted by the panel on tropical cyclones (PTC) that finalises the selection:

The proposed name should be neutral to (a) politics and political figures (b) religious beliefs, (c) cultures and (d) gender

Name should be chosen in such a way that it does not hurt the sentiments of any group of population over the globe

It should not be very rude and cruel in nature

It should be short, easy to pronounce and should not be offensive to any member

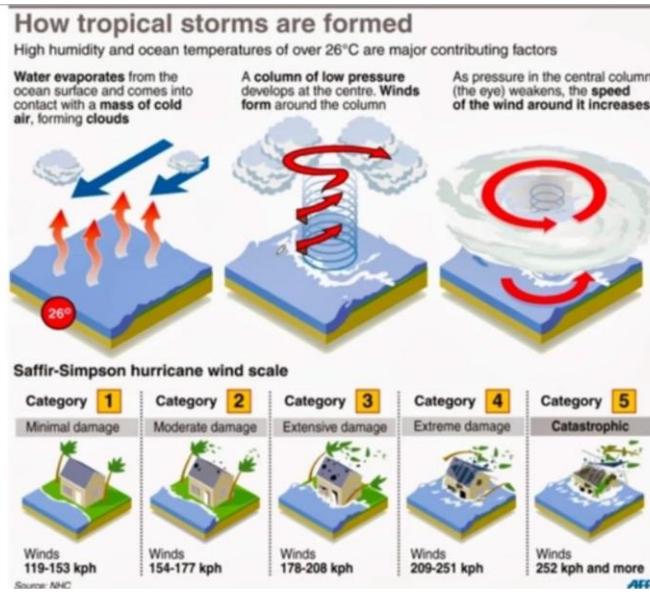
The maximum length of the name will be eight letters

The proposed name should be provided with its pronunciation and voice over

The names of tropical cyclones over the north Indian Ocean will not be repeated. Once used, it will cease to be used again. Thus, the name should be new

Q - Willy willy is : (1995)

- A) a type of green grown in temperate regions
- B) a wind that blows in a desert
- C) a tropical cyclone of the north-west Australia
- D) a kind of common fish found near laccadives islands



India Meteorological Department Tropical Cyclone Intensity Scale

Category	Sustained winds (3-min average)	
Super Cyclonic Storm	>120 kt	>222 km/h
Very Severe Cyclonic Storm	64–119 kt	118–221 km/h
Severe Cyclonic Storm	48–63 kt	88–117 km/h
Cyclonic Storm	34–47 kt	62–87 km/h
Deep Depression	28–33 kt	52–61 km/h
Depression	≤27 kt	≤51 km/h

What is BIMSTEC?

BIMSTEC is a sub-regional organisation that came into being in 1997 through the Bangkok Declaration.

It includes the littoral states of India, Bangladesh, Sri Lanka, Myanmar (Thailand is a member too) and the land-locked states of Nepal and Bhutan.

Initially, it was formed with four Member States with the acronym 'BIST-EC' (Bangladesh, India, Sri-Lanka and Thailand Economic Cooperation) and became 'BIMST-EC' after the inclusion of Myanmar.

BIMSTEC has identified 14 pillars for special focus - trade and investment, transport and communication, energy, tourism, technology, fisheries, agriculture, public health, poverty alleviation, counter terrorism and transnational crime, environment and disaster management, people-to-people contact, cultural cooperation and climate change.

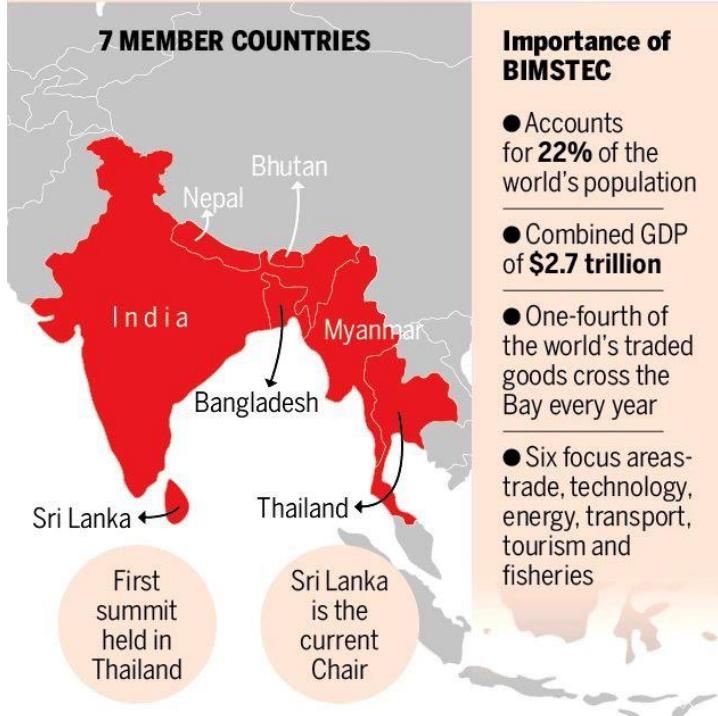
BIMSTEC

WHAT YOU SHOULD KNOW



Stands for **The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation**

Founded in 1997 through **Bangkok Declaration**



India to buy MQ-9 Reaper



India is likely to purchase MQ-9 Reaper drones in a billion-dollar deal with the US. These drones, which use laser-guided Hellfire missiles for precision strikes, fall in the category of hunter-killer Unmanned Aerial Vehicles (UAVs).

The US had reportedly used the MQ-9 Reaper drone for an air strike on a compound in Kabul, Afghanistan that had allegedly killed Al-Qaeda chief Ayman al-Zawahiri.

In 2017, the Indian Navy had taken these drones on lease for two years. They were being operated for surveillance of activities by the PLA Navy (PLAN) of China in the Indian Ocean. During the peak of the military stand-off with China in eastern Ladakh in 2020, India had leased two MQ-9A drones from US-based company General Atomics under a Company-Owned, Company-Operated (COCO) lease agreement.

This drone is used for surveillance, intelligence gathering and precision strikes. It can also be controlled from ground stations and naval vessels.

The Indian government is reportedly planning to acquire a total of 30 MQ-9 Reaper drones – 10 each for the Indian Navy, Indian Air Force (IAF) and the Indian Navy.

The MQ-9 Reaper, manufactured by General Atomics, will be bought through the Foreign Military Sales route used by the US for government-to-government deals.

Media reports claimed that though the drone has been acknowledged as a tri-service requirement in India and the deal has been under discussion for some time, it was not brought to the DAC earlier as there was no scope for local production because the US manufacturer refused to share its knowhow for a Make-in-India component.

Another factor was its high cost. The government had reportedly looked at other options but nothing came anywhere close to the MQ-9. As a result, General Atomics will continue to provide spares and service the UAVs.

Pokkali Rice

PICTURE OF THE WEEK

Pokkali, the rice of the future



Workers return after sowing the seeds of Pokkali paddy at Kadakkudy on the outskirts of Ernakulam. A saline-tolerant variety of rice, Pokkali is most prominently cultivated in the Ernakulam, Thrissur and Alappuzha districts of Kerala at the onset of monsoon. One season of rice farming is alternated with another season of shrimp cultivation. Last year, Agriculture Minister P. Prasad said this rice variety, which displays strength in the face of adverse weather conditions, needs to be preserved for the future. Thulasi Kakkat

The pokkali variety of rice is known for its saltwater resistance and flourishes in the rice paddies of coastal Alappuzha, Ernakulam and Thrissur districts of Kerala.

The single-season paddy is raised in saltwater fields between June and November followed by a season of fish-farming.

The uniqueness of the rice has brought it the Geographical Indication (GI) tag and is the subject of continuing research.

Several foreign research institutes, including the International Rice Research Institute in the Philippines, have been studying pokkali's gene pools and have identified a portion of DNA on one of its chromosomes that is crucial for salt tolerance.

Given its ability to thrive under harsh climatic conditions and produce high yield, it can help in promoting climate-resilient agriculture.

Pokkali has medicinal properties and its higher value of antioxidants and low carbohydrate content makes it preferable to those on a low sugar diet.

Vytila-11 is the latest variety of pokkali developed by the Kerala Agricultural University.

It yields about 5 tonnes per hectare.

The crop duration is about 110 days.

Other GI Tag Registered Varieties from Kerala: Kaipad, Wayanad Jeerakasala, Wayanad Gandhakasala, Palakkadan Matta and Navara.

Further, the Kuttanad below-sea level farming system has been recognised by the Food and Agriculture Organisation of the United Nations (FAO) as a Globally Important Agricultural Heritage System (GIAHS).

It is unique as it practices rice cultivation below sea level.

Globally Important Agricultural Heritage Systems

Globally Important Agricultural Heritage Systems (GIAHS) was started by the FAO to safeguard and support the world's agricultural heritage systems.

GIAHS are outstanding landscapes of aesthetic beauty that combine agricultural biodiversity, resilient ecosystems and a valuable cultural heritage.

Three recognised GIAHS sites in India:

Pampore Saffron Heritage of Kashmir.

Koraput Traditional Agriculture of Odisha.

Kuttanad Below Sea Level Farming System of Kerala.

NIRF



About:

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

It is the first-ever effort by the government to rank Higher Education Institutions (HEIs) in the country.

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

Assessment on Five Parameters:

Teaching, Learning and Resources (TLR)

Research and Professional Practice (RP)

Graduation Outcomes (GO)

Outreach and Inclusivity (OI)

Peer Perception.

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

Reason for Launch: The subjectivity in the ranking methodology developed by QS World University Rankings and the Times Higher Education World University Ranking led India to start its own ranking system for Indian HEIs on the line of Shanghai Rankings.

NIRF is in its sixth year, but it continues to only rank Indian HEIs whereas Shanghai Rankings were international in character from the first year itself.

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

What are Noncommunicable diseases (NCDs)?



Noncommunicable diseases (NCDs), including heart disease, stroke, cancer, diabetes and chronic lung disease, are collectively responsible for almost 70% of all deaths worldwide.

Almost three quarters of all NCD deaths, and 82% of the 16 million people who died prematurely, or before reaching 70 years of age, occur in low- and middle-income countries

Causes :

The rise of NCDs has been driven by tobacco, harmful use of alcohol, unhealthy diet, insufficient physical activity, overweight/obesity, raised blood pressure, raised blood sugar and raised cholesterol

Consequences :

The epidemic of NCDs poses devastating health consequences for individuals, families and communities, and threatens to overwhelm health systems.

The diseases kill 7 out of 10 people globally from risk factors like tobacco, alcohol, unhealthy diet, physical inactivity and air pollution.

Apart from the lives they take, NCDs take a heavy toll on economies, cutting down people in their most productive years

Data Analysis for India

According to the study report “India: Health of the Nation's States”- The India State-Level Disease Burden Initiative in 2017 by Indian Council of Medical Research (ICMR), it is estimated that the proportion of deaths due to Non-Communicable Diseases (NCDs) in India have increased from 37.9% in 1990 to 61.8% in 2016.

The four major NCDs are cardiovascular diseases (CVDs), cancers, chronic respiratory diseases (CRDs) and diabetes which share four behavioural risk factors –unhealthy diet, lack of physical activity, and use of tobacco and alcohol.

Treatment and Management

NCDs are largely preventable and treatable; nearly seven million lives could be saved for just US\$ 0.84 per person per year from now until 2030.

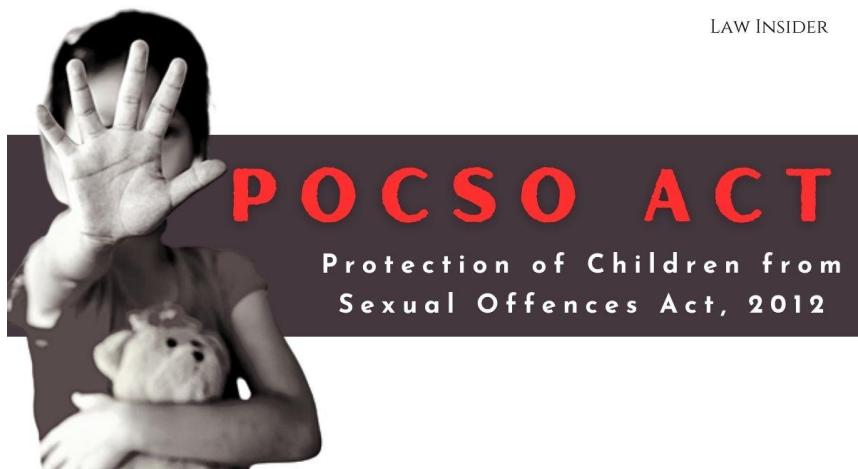
Management of NCDs includes detecting, screening and treating these diseases, and providing access to palliative care for people in need.

Role of WHO

WHO's mission is to provide leadership and the evidence base for international action on surveillance, prevention and control of NCDs.

Urgent government action is needed to meet global targets to reduce the burden of NCDs.

POCSO



About POCSO Act

Formulation: It is the first comprehensive law in India dealing specifically with sexual abuse of children, enacted in 2012 and is administered by the Ministry of Women and Child Development (MoWCD).

Objectives: The Act was designed to protect children aged less than 18 from sexual assault, sexual harassment and pornography offences and provide for establishment of Special Courts for trial of such offences and related matters and incidents.

Salient features of the Act

Gender-neutral law: The POCSO Act establishes a gender-neutral tone for the legal framework available to child sexual abuse victims by defining a child as “any person” under the age of 18.

No time limit for reporting abuse: A victim can report an offence at any time, even a number of years after the abuse has been committed.

Mandatory reporting: The Act also makes it the legal duty of a person aware of the offence to report the sexual abuse. In case s/he fails to do so, the person can be punished with six months’ imprisonment or a fine.

Amendment to the Act

The Act was amended for the first time in 2019 for enhancing the punishments for specific offences in order to deter abusers and ensure a dignified childhood.

This amendment enhanced the punishment to include death penalty for aggravated penetrative sexual assault of the child.

It also provides for levy of fines and imprisonment up to 20 years to curb child pornography.

Implementation hurdles in POCSO Act

Such abuse is on the rise: According to a recent survey, one in every two children is a victim of sexual abuse in India.

Limited POCSO courts: The POCSO courts have not been designated in all districts. As of 2022, only 408 POCSO courts have been set up in 28 States as part of the Government’s Fast Track Special Court’s Scheme.

There is also a lack of Special Public Prosecutors appointed specifically to handle POCSO cases.

Excessive delays: The slow pace of designation of Special Courts, delay in investigation and filing of charge sheets, non-appointment of support persons for child victims in most cases leads to tardy implementation of the Act.

Uttar Pradesh has the highest pendency with more than three-fourths (77.77%) of the total POCSO cases filed between November 2012 and February 2021 pending.

Poor disposal rate: On an average, it takes 509.78 days for a POCSO case to be disposed of whereas it has been stipulated under the Act that such cases need to be disposed of within a year.

Chandigarh and West Bengal are the only states where the average time taken for convictions is within one year.

High acquittal rate: 44% of trials under POCSO end in acquittals while only 14.03% end in convictions, i.e., for every one conviction in a POCSO case, there are three acquittals.

This goes contrary to the data published by the National Crime Record Bureau (NCRB) in 2021 wherein 96% of the cases filed under the POCSO Act, 2012, the accused was a person known to the child victim.

Absence of support persons: The Supreme Court had noted that in 96% of cases, a support person was not provided to the victim.

Lack of awareness: The general knowledge of the POCSO Act remains severely inadequate in India.

New challenges: Incidents of child abuse have also risen exponentially since the Covid-19 pandemic, with the emergence of new forms of cybercrime.

DAILY STATIC QUIZ- 16TH JUNE (ART & CULTURE)

1. 1. Question

Consider the following statements.

1. The cave is carved into the hard-monolithic granite rock face of Barabar hills, flanked to its left by the smaller Sudama cave.
2. The ornamentation on the “curved architrave” of the cave consists of carvings of elephants on their way to the stupas.

The above statements refer to?

3. a) Udayagiri Caves
4. b) Lomas Rishi caves
5. c) Kanheri Caves
6. d) Elephanta Caves

Solution: b)

Lomas Rishi Cave is carved into the hard-monolithic granite rock face of Barabar hills, flanked to its left by the smaller Sudama cave.

This rock-cut cave was carved out as a sanctuary. It was built during the Ashokan period of the Maurya Empire in the 3rd century BC, as part of the sacred architecture of the Ajivikas.

The hut-style facade at the entrance to the cave, which was meant as a milk shed, had an impact on South Asian rock-cut architecture.

It became a model for all such arched entrance portals built at many other Buddhist and Jain caves in India, such as the much bigger Buddhist Chaitya halls of Ajanta or Karli in Maharashtra.

2. 2. Question

Which of the following was/were the great centres of Buddhist learning and art.

1. Nalanda
2. Odantapuri
3. Vikramshila
4. Somarupa

How many of the above options are correct?

5. (a) Only one
6. (b) Only two

- 7. (c) All three
- 8. d) All four

Solution: d)

The Pala period (750 A.D. to the middle of the 12th century) witnessed the last great phase of Buddhism and of the Buddhist art in India. The Buddhist monasteries (*mahaviharas*) of **Nalanda, Odantapuri, Vikramasila and Somarupa** were great centres of Buddhist learning and art.

3. 3. Question

The Jain philosophy holds that the world is created and maintained by?

- 1. a) Universal soul.
- 2. b) Universal truth.
- 3. c) Universal faith.
- 4. d) Universal law.

Solution: d)

According to Jain doctrine, the universe and its constituents—soul, matter, space, time, and principles of motion—have always existed. All the constituents and actions are governed by **universal natural laws**.

4. 4. Question

Consider the following statements regarding the inscriptions found at Aihole, Karnataka.

- 1. They are written in different language and script.
- 2. They mention about poet Kalidasa.
- 3. It contains only about praising of Kings.

How many of the above statements are correct?

- 4. a) Only one
- 5. b) Only two
- 6. c) Only three
- 7. d) None

Solution: b)

The inscription written in Sanskrit and it is in Kannada script.

Many inscriptions are found at Aihole, but the inscription which is found at Meguti Temple popularly known as Aihole inscription, which has the significance in the history of India, witnessed for the many historical events of Chalukyas.

There is a mention about the defeat of Harshavardhana by Pulikeshi II. And there is a mention about the victory of Chalukyas on Pallavas, also mentioned about the shifting of the capital from Aihole to Badami by Pulikeshi. There is mention about the poet Kalidasa.

5. 5. Question

Consider the following statements regarding the major features of Chola age paintings?

1. They were often done on temple panels.
2. They show narrations and aspects related to Lord Shiva.
3. They avoid depictions of humans and plants.

How many of the above statements are correct?

4. a) Only one
5. b) Only two
6. c) All three
7. d) None

Solution: b)

8. The most important Chola paintings are those in Brihadeswara temple. The paintings were executed on the walls of the narrow passage surrounding the shrine.
9. The great tradition of painting **shows narrations and aspects related to Lord Shiva**, Shiva in Kailash, Shiva as Tripurantaka, Shiva as Nataraja, a portrait of the patron Rajaraja and his mentor Kuruvar, dancing figures, etc.
10. The paintings of Brihadeswara temple exemplify the stylistic maturity the artists evolved over the years.
11. Sinuous pre-determined flow of lines, supple modelling of figures, elongation of the physiognomic features of human figures—all these represent the perfection the Chola artist had achieved during the period on the one hand and the phase of transition on the other.

THE HINDU ANALYSIS

17TH JUNE 2023

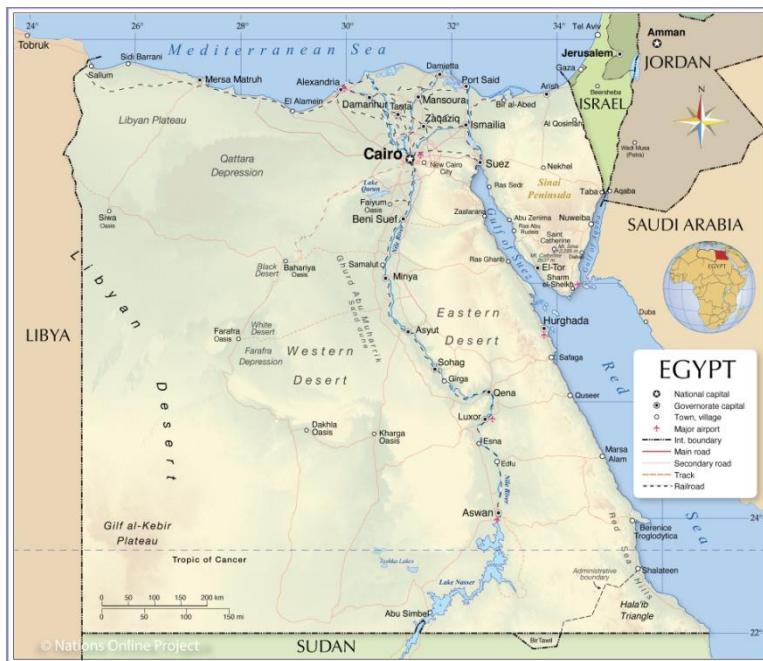
CREDITS : DEEPAK YADAV SIR



TOPICS DISCUSSED TODAY

<u>1)</u>	<u>DAILY MAPPING QUESTION - EGYPT</u>
<u>2)</u>	<u>SATURN'S MOON ENCELADUS</u>
<u>3)</u>	<u>PRADHAN MANTRI BHARATIYA JAN AUSADHI YOJNA</u>
<u>4)</u>	<u>PM MODI'S YOGA SESSION AT UN HEADQUARTERS</u>
<u>5)</u>	<u>EDITORIAL ANALYSIS- RAILWAY SAFETY</u>
<u>6)</u>	<u>DERAILMENT OF INDIAN RAILWAYS</u>
<u>7)</u>	<u>US-IRAN NUCLEAR DEAL</u>

Daily Mapping Question – Egypt



The map shows Egypt, a country situated mainly in the northeastern corner of the African continent bordering the [Mediterranean Sea](#) in the north and the Gulf of Suez, the Gulf of Aqaba, and the Red Sea in the east. The eastern portion of Egypt, the [Sinai Peninsula](#), is situated in [Western Asia](#) (Middle East).

Countries with international borders to Egypt are the [occupied Palestinian territory](#) of the Gaza Strip, [Israel](#), [Libya](#), and [Sudan](#). Egypt shares maritime borders with [Cyprus](#), [Greece](#), [Jordan](#), [Saudi Arabia](#), and [Turkey](#).

Modern Egypt became independent in 1922 (from [Britain](#)). From 1958 to 1961, the country was united with [Syria](#) as the United Arab Republic.

Today the Arab Republic of Egypt (its official name) occupies an [area](#) of 1 million km²; compared, it is almost twice the size of [France](#) or more than twice the size of the [U.S. State of California](#).

Egypt has a [population](#) of some 102 million (in 2021). The capital and by far the largest city is [Cairo](#), with a population of 20 million people in its metropolitan area (including the governorate of Giza). Spoken [language](#) is Modern Standard Arabic; the colloquial language is the Egyptian-Arabic dialect. The main religion is Sunni Islam (85-90% of the population), about 10-15% of the Egyptians are Coptic Christians.

UPSC PYQ - 2023

Consider the following heavy industries:

- 1- Fertiliser plants
- 2- Oil refineries
- 3- Steel plants

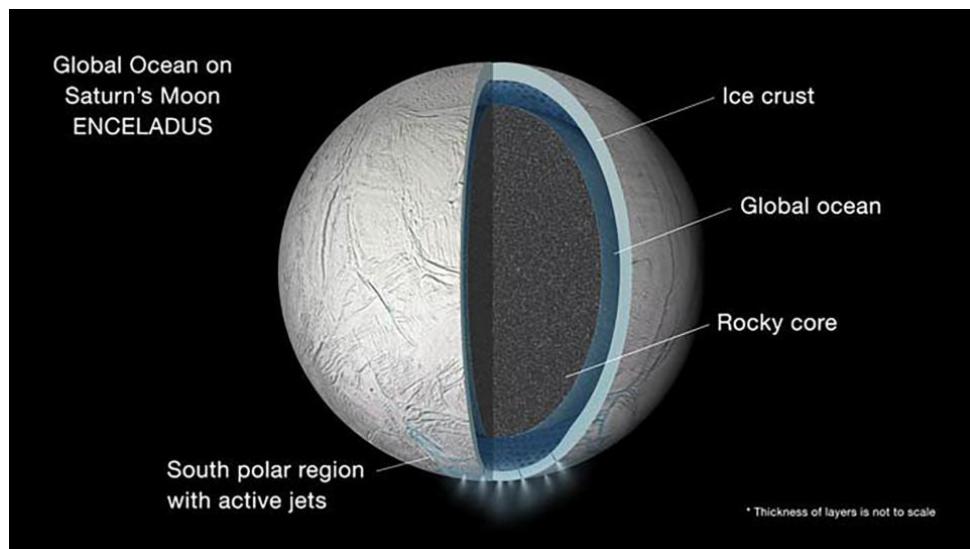
Green hydrogen is expected to play a significant role in decarbonizing how many of the above industries?

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

Answer

Answer is C.

Saturn's moon Enceladus



Context :- Context: A new study reported that phosphorus, a key chemical element for many biological processes, has been found in icy grains emitted by Enceladus, the small moon of Saturn.

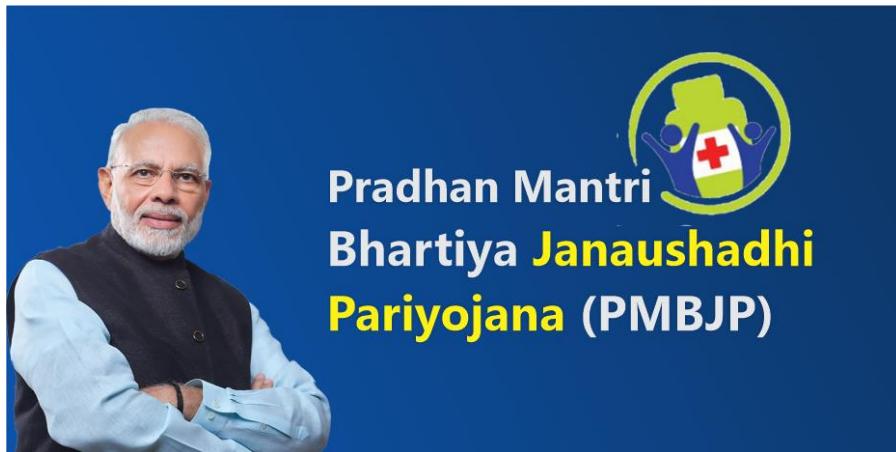
NASA's Cassini space probe, which has been studying Saturn and its moons for 13 years, has made a significant discovery.

Significance:

This finding is significant because phosphorus is a crucial building block for DNA and is essential for life as we know it. The concentrations of phosphates in Enceladus' ocean waters were found to be at least 100 times higher than those in Earth's oceans.

This discovery suggests that the ocean on Enceladus could potentially support life and meets the strict requirements for life as we understand it.

Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)



PMBJP is a campaign launched by the Department of Pharmaceuticals in 2008 under the name Jan Aushadhi Campaign.

The campaign was revamped as PMBJP in 2015-16.

Bureau of Pharma PSUs of India (BPPI) is the implementation agency for PMBJP.

The Bureau of Pharma Public Sector Undertakings (PSUs) of India works under the Ministry of Chemicals & Fertilisers.

BPPI has also developed the Janaushadhi Sugam Application.

A medicine is priced on the principle of maximum 50% of average price of the top three brands branded medicines. Thus, the prices of Jan Aushadhi Medicines are cheaper by at least 50% and in some cases, by 80% to 90% of the market price of the branded medicines.

What is the objective of the PMBJP?

To make available quality medicines, consumables and surgical items at affordable prices for all and reduce out of pocket expenditure of consumers/patients.

To popularise generic medicines among the masses and dispel the prevalent notion that low priced generic medicines are of inferior quality or are less effective.

Generic medicines are unbranded medicines which are equally safe and having the same efficacy as that of branded medicines in terms of their therapeutic value.

To ensure easy availability of the menstrual health services (Janaushadhi 'Suvidha' sanitary napkins) to all women across India.

Generate employment by engaging individual entrepreneurs in the opening of PMBJP Kendras.

Janaushadhi Kendra

These are the centres from where quality generic medicines are made available to all.

Bureau of Pharma PSUs in India (BPPI) supports Janaushadhi Kendras as a part of PMBJP.

The Government has set a target to increase the number of Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJKs) to 10,500 by the end of March 2025.

As on 31st January, 2022, the number of stores has increased to 8,675.

Product basket of PMBJP comprises 1451 drugs and 240 surgical instruments.

Further, new medicines and nutraceuticals products like protein powder, malt-based food supplements, protein bar, immunity bar, sanitizer, masks, glucometer, oximeter, etc. have been launched.

International Yoga Day: People from over 180 nations to participate PM Modi's yoga session at UN headquarters



People from more than 180 countries will participate in Prime Minister Narendra Modi-led Yoga Day celebrations in New York on June 21, representing different walks of life and comprising diplomats, artists, academicians and entrepreneurs among others, sources said on Saturday. The United Nations proclamation of June 21 as the International Day of Yoga in the first year of Prime

Minister Modi's term in 2014 has been a notable highlight in his government's list of its overseas successes and overall measures to boost India's global profile.

With the ruling BJP now in the middle of celebrating the government's nine uninterrupted years at the helm and its members fanning out across the country to spread the word about its achievements, the buzz is also growing thousands of kilometres away as Modi and the Yoga Day return to where it all began -- the UN headquarters here.

The Indian government is also going all out to make the June 21 event here next week a big success.

Official sources said people belonging to more than 180 countries will participate in the exercise and they will represent different walks of life. They will include diplomats, leaders, artists, key cultural figures, academicians and entrepreneurs.

Modi will lead the ninth annual International Yoga Day celebrations at the UN headquarters between 8 am and 9 am at its North Lawn.

Editorial Analysis

Railway safety — listen to the voices from below



Context :- Nothing focuses the nation's collective attention on the Indian Railways as a major accident. The triple train collision at Bahanaga Bazar railway station, near Balasore in Odisha on June 2, which led to the tragic loss of over 280 lives, has evoked all the expected responses from various quarters: calls for the resignation of the Minister in charge of the Railways; collective breast beating and despair over where the Railways are headed; the sudden sprouting of 'railway experts' offering explanations as to how the accident occurred and remedial measures to prevent accidents in the future, and comparisons with Railway systems abroad. In short, there is an overwhelming sense of *déjà vu*.

A multiplicity of inquiries

There are, however, a few unique features about this accident. For the first time ever a Railway Minister not only visited the site of the accident but also chose to remain at the site to oversee relief and restoration work till the lines were restored for traffic. Even more exceptional was the visit of the Prime Minister himself to the site of the accident, perhaps a historical first for the Indian Railways. However, his statement that "instructions have been given to ensure proper and speedy investigation of tragedy and to take prompt and stringent action against those found guilty", even as a statutory inquiry by the Commissioner of Railway Safety was to begin, gave the impression that it had already been determined that the accident was caused by human agency. The subsequent handing over of the inquiry to the Central Bureau of Investigation is also unprecedented, the reason for which is not readily apparent unless criminal intent is suspected.

Statistics show that over the last two decades, the number of derailments which constitute the majority of accidents has drastically declined from around 350 per year around the turn of the millennium, to 22 in 2021-22. This is a

commendable achievement by any standards. The fact that this has been achieved in the context of a nearly threefold increase in freight loading and more than a doubling of passenger traffic lends credence to the conclusion that the overall safety performance of the Railways has improved significantly over the years.

Safety and the information flow

This concerns the flow of information regarding unsafe practices or situations on a real-time basis. Unlike many other organisations or industries, where the activities or operations are concentrated more or less in a limited area physically (for example, nuclear power plants, steel and chemical plants), the activities of the Railways are spread geographically over a wide area, involving a multiplicity of disciplines (departments) that need to work in close coordination on a real-time basis to ensure the smooth and safe running of trains.

Real empowerment

This is not some idealistic concept. A system called Confidential Incident Reporting and Analysis System (CIRAS) was developed by one of the British universities nearly three decades ago for application on the British Railways in the mid-1990s. The underlying philosophy is to encourage the lower staff to point out deviations on a real-time basis, maintaining the confidentiality of the reporter, and encouraging the expression of frank views. The system, in effect, turns the conventional top down inspection on its head. This is in fact an example of real empowerment of staff.

With the rapid advances in communications and information technology since CIRAS was developed nearly three decades ago, the introduction of a similar reporting system on the Indian Railways should not be difficult.

However, there is a need to sound a note of caution. The success and effectiveness of a CIRAS-like reporting system depends not only on putting in place the physical infrastructure (which is the easier part), but also a total change in the mindset of the management, from the highest to the lower levels, vis-à-vis the staff at the field level.

There has to be an attitudinal change from the conventional approach of fault-finding and punishment to a more enlightened ethos of a shared commitment to ensure safety at all levels. The aim should be to correct, not punish. Listen to the voices from below and act. Effecting this change is not easy.

Derailments in Indian Railways



Context :- The tragic train accident that occurred on June 2, 2023, at Bahanaga Bazar railway station in Odisha's Balasore district, has highlighted the urgent need for effective safety measures to prevent such devastating incidents.

The recent incident has brought attention to the Kavach initiative, which aims to enhance railway safety in India. However, the Kavach system has not been implemented on the Odisha route.

Comptroller and Auditor General of India (CAG)'s 2022 report on 'Derailments in Indian Railways' flagged multiple shortcomings on the causes of train accidents in the country.

Major Highlights of the Report

About:

The CAG report reveals that nearly 75% of the consequential train accidents between 2017-18 and 2020-21 were caused by derailments.

Derailments: The Leading Cause of Train Accidents

Out of 217 consequential train accidents, 163 (around 75%) were caused by derailments.

Other causes of train accidents include fire in trains (20 accidents), accidents at unmanned level-crossings (13 accidents), collisions (11 accidents), accidents at manned level crossings (8 accidents), and miscellaneous incidents (2 accidents).

Classification of Train Accidents:

The Railway Board classifies train accidents into two categories: Consequential Train Accidents and Other Train Accidents.

Consequential Train Accidents include accidents with significant repercussions, such as loss of life, human injury, property damage, and interruption to railway traffic.

Other Train Accidents encompass all accidents that do not fall under the consequential category.

Factors Responsible for Derailments:

Analysis of inquiry reports revealed 23 factors contributing to derailments in 16 Zonal Railways and 32 divisions.

The major factor responsible for derailments was related to maintenance of track (167 cases), followed by deviation of track parameters beyond permissible limits (149 cases) and bad driving/overspeeding (144 cases).

Rashtriya Rail Sanraksha Kosh (RRSK):

The CAG also analysed the performance of RRSK, established in 2017-18 to strengthen safety measures on the rail network to prevent accidents with a corpus of Rs 1 lakh crore.

The audit found that while the Gross Budgetary Support of Rs 15,000 crore had been contributed, the Railways' internal resources fell short of the target for funding the remaining Rs 5,000 crore per year to RRSK.

This shortfall of funds from internal resources undermined the primary objective of creating RRSK to enhance safety in Railways.

Declining Allotment of Funds for Track Renewal:

The report highlighted a decline in the allotment of funds for track renewal works, from Rs 9,607 crore in 2018-19 to Rs 7,417 crore in 2019-20.

Furthermore, the allocated funds for track renewal works were not fully utilised.

Out of 1,127 derailments during 2017-21, 289 derailments (26%) were linked to track renewals.

Recommendations and Pending Projects:

The CAG report recommended strict adherence to scheduled timelines for conducting and finalising accident inquiries.

Indian Railway (IR) may develop a strong monitoring mechanism to ensure timely implementation of maintenance activities by adopting fully mechanised methods of track maintenance and improved technologies.

IR may prepare the 'Detailed Outcome Framework' for each item of safety work as per the indicative outcomes to gauge whether the benefits derived out of the RRSK funds are in the conformity with the objectives behind the creation of the Fund

Note: Derailment refers to the situation when a train or any other rail vehicle goes off the tracks, resulting in a loss of stability and the inability to continue moving along its intended path. It is a critical safety incident that can lead to significant damage, injuries, and even fatalities.

What is Kavach?

About:

Kavach is an indigenously developed Automatic Train Protection (ATP) system aimed at enhancing safety in train operations across the vast network of Indian Railways.

Developed by the Research Design and Standards Organisation (RDSO) in association with three Indian vendors, it has been adopted as our National Automatic Train Protection (ATP) System.

The Indian Railways Institute of Signal Engineering & Telecommunications (IRISET) in Secunderabad, Telangana hosts the 'Centre of Excellence' for Kavach.

IRISET is responsible for training in-service railway staff on Kavach through its dedicated Kavach lab.

Functionality:

The system meets Safety Integrity Level-4 (SIL-4) standards, signifying its high reliability.

Prevents trains from passing red signals and enforces speed restrictions.

Activates the braking system automatically if the driver fails to control the train.

Prevents collisions between two locomotives equipped with Kavach systems.

Relays SoS messages during emergency situations.

Offers centralised live monitoring of train movements through the Network Monitor System.

Utilises Traffic Collision Avoidance System (TCAS) for two-way communication between the station master and loco-pilot.

Implementation and Deployment of Kavach:

Of the total route length of 1.03 lakh kilometres, only 1,455 kilometres have been brought under Kavach yet.

The South Central Railway (SCR) Zone has been at the forefront of Kavach implementation.

Way Forward

Utilising Data Analytics and AI: Utilise big data analytics and artificial intelligence to analyse vast amounts of data collected from trains, tracks, and infrastructure. This can help identify patterns, detect anomalies, and predict potential safety risks, enabling proactive interventions.

Implementing Kavach Project: It is crucial to expedite the implementation of the Kavach project on the Howrah-Chennai line passing through at least four railway zones.

Other railway zones should prioritise the installation of the Kavach system to ensure enhanced safety measures across the entire route

Editorial Analysis- US Iran Nuclear Deal



Context :- Hints of interactions between American and Iranian diplomats over the last few months finally became public on June 14 when the Foreign Minister of the Sultanate of Oman, Sayyid Badr Albusaidi, told the media that Iran and the United States were finalising a deal on the release of American prisoners in Iran, and that there was “seriousness” on the part of the two countries to come to a fresh deal on the nuclear issue.

An Iranian spokesperson also confirmed that indirect talks between the U.S. and Iran had taken place in Muscat. U.S. interactions with Iran began last year when the U.S. Special Envoy for Iran, Robert Malley, met the Iranian Permanent Representative to the United Nations in New York. After that, the White House Coordinator for the Middle East and North Africa, Brett McGurk, visited Oman in February, March and May, where he met Iran's chief nuclear negotiator on the nuclear issue, Ali Bagheri-Kani, in “proximity” talks.

What the nuclear arrangement entails

Following Mr. McGurk's last visit in May, the Omani ruler, Sultan Haitham bin Tariq Al Said, visited Tehran on May 28-29. He was perhaps carrying a message from the U.S. on a new agreement on the nuclear issue for Iran's Supreme Leader Ayatollah Ali Khamenei. This was in line with the earlier role played by Oman in the run-up to the nuclear agreement in 2015.

Ayatollah Khamenei then addressed this matter publicly on June 11. He did not call for the revival of the earlier agreement but sought a new one which would ensure that Iran's nuclear infrastructure remained in place; he

affirmed that Iran had no interest in a nuclear weapon and would cooperate with the International Atomic Energy Agency (IAEA) inspectors.

According to media reports, the proposed agreement, expected to be finalised in a few weeks, will be informal and unwritten — Israel's Prime Minister Benjamin Netanyahu has called it a “mini-agreement”, while Iranian officials see it as a “political ceasefire”. Under the arrangement, Iran will freeze its nuclear enrichment at 60%; it will not attack U.S. military contractors in Syria and Iraq, will improve cooperation with the IAEA’s inspectors, and will not provide ballistic missiles to Russia. Iran will also release the three U.S. citizens in its custody.

In return, the U.S. has pledged to avoid new harsh sanctions on Iran, not to seize oil tankers in the Gulf waters, and not pursue anti-Iran resolutions in the United Nations. The U.S. is also expected to defreeze Iran’s bank accounts of about \$80 billion in various banks outside the country, and will immediately allow the release of \$7 billion in South Korea and \$2.7 billion in Iraq.

American interests

Since this is an unwritten agreement, the Joe Biden administration will not have to seek Congressional approval. And, since it does not call for easing of existing U.S. sanctions, the Republicans will find it difficult to attack the deal in the forthcoming presidential campaign.

The U.S. has long recognised that the Joint Comprehensive Plan of Action (the Iran nuclear deal) in its original form could not be revived. In the U.S., there were now demands for a broader agreement that would address Iran’s development of ballistic missiles, its “malign” role in the region and support for terrorism, matters on which there would be no headway with Iran. U.S. officials had also recognised that sanctions were no longer effective in influencing Iran’s responses to American pressures.

Thus, what the proposed arrangement focuses on are widespread concerns relating to Iran’s uranium enrichment programme that had reached 84% and its stockpile of thousands of installed centrifuges. The U.S. military had estimated that Iran was just “several months” from a weapon, while Israeli sources thought it was one to two years away. Iran’s progress towards a weapon had led to real concerns about a region-wide conflagration as Israel, with or without the Americans, was expected to take pre-emptive military action.

Another positive implication from the U.S. and Israeli perspective is that the deal with Iran could end Saudi Arabia’s own nuclear aspirations.

What could happen on the ground

Iran is entering into the arrangement with no illusion that it will have a long-term value; at best, it will survive the present Biden administration. But it will help to release billions of dollars that Iran could use to ameliorate the dire living conditions of millions of its citizens. It will also enable it to continue selling some of its oil in world markets; the U.S. has so far turned a blind eye to these sales to moderate oil prices to the extent possible.

Regionally, the arrangement will facilitate further improvement in Iran’s ties with Saudi Arabia, with the prospect of the kingdom’s normalisation of relations with Israel being placed firmly on the back burner. Iran also retains the option of continuing to expand its political and economic ties with Russia and China.

UPSC Mains PYQ - 2018 | Iran nuclear deal

In what ways would the ongoing US-Iran Nuclear Pact Controversy affect the national interest of India? How should India respond to its situation?

THE HINDU ANALYSIS

18TH JUNE 2023

CREDITS : DEEPAK YADAV SIR



TOPICS DISCUSSED TODAY

1)	Daily mapping question-Greece
2)	The African union
3)	Urban heat islands
4)	Skyglow:light pollution
5)	monkeypox
6)	diabetes
7)	INDIA-US “THE HIGH TECH BOOST”
8_	INDIA-US RELATIONS
9)	Textile Industry
10)	Tonga

Daily Mapping Question – Greece



Occupying the southern most part of the Balkan Peninsula, Greece and its many islands (almost 1,500) extend southward from the European continent into the [Aegean](#), [Cretan](#), [Ionian](#), [Mediterranean](#) and [Thracian](#) seas.

Crete and Evia are its two largest islands and major island groups include the [Argo-Saronic](#), [Cyclades](#), [Dodecanese](#), [Ionian](#), [Northeast Aegean](#) and [Sporades](#).

With the vast percentage of its land comprised of hills and rugged mountains, Greece is one of the most mountainous countries in Europe. Its 13,676 km toothy-edged shoreline is deeply indented by dozens of gulf.

The western half of the country is dominated by the steep peaks of the **Pindus mountains**, a range of the Dinaric Alps that stretch south from Albania and Macedonia. Typical elevations here exceed 2,500 meters, and those mountains are punctuated by numerous lakes, rivers and wetlands.

The highest Greek mountain is **Mount Olympus**, rising to 2,918 meters (9,570 ft). To its immediate southwest stand the massive Meteora rock formations; gigantic pillars of stones worn smooth by wind and water over thousands of years.

In the far-north along its border with Bulgaria, the heavily-forested Southern Rhodope Mountain range spreads across the land.

Greece is home to a series of ancient volcanoes, including those on the islands of Kos, Methana, Milos, Nisyros, Poros and Santorini. None are currently erupting, and the last recorded significant eruptions occurred on the island of **Nisyros** in 1887/1888, and on the island of Santorini in 1950.

The **Peloponnesse Peninsula** is slightly separated from the mainland by the Corinth Canal, a 4-mile long man-made canal through the Isthmus of Corinth. This narrow canal is used primarily for shipping purposes.

While most of the smaller rivers in Greece dry up in the heat of summer, rivers of note include the Acheloos, Aliacmon, Evros and Pinios. Lakes of size include Trichonis, Vegoritis and Volvi.

Recently in News



78 dead after boat with refugees and migrants sinks off Greece

The accident occurred in international waters in the Ionian Sea and prompted an extensive rescue operation complicated by strong winds.

At least 78 people have died and many more are feared missing after a fishing boat carrying refugees and migrants capsized and sank off the southern coast of [Greece](#) – one of the worst such disasters this year.

The Greek coastguard said in a statement on Wednesday the vessel sank in international waters, 47 nautical miles (87km) southwest of Pylos, off the Peloponnese coast. The spot is close to one of the deepest areas of the Mediterranean.

Rescuers saved 104 passengers – including Egyptians, Syrians, Pakistanis, Afghans and Palestinians – and recovered 79 bodies.

The search continued early on Thursday for more survivors, with aircraft dropping flares to help search teams.

The sinking could be one of the worst ever recorded on the feared central Mediterranean migration route, which is the world's deadliest.

Ioannis Zafiropoulos, deputy mayor of the southern port city of Kalamata, where survivors were taken, said his information indicated there were “more than 500 people” on board.

Six coastguard vessels, a navy frigate, a military transport and an air force helicopter, as well as several private vessels, were taking part in the search for those missing overnight.

UPSC PYQ - 2010

Q- Given below are the names of four energy crops. Which one of them can be cultivated for ethanol?

- (a) Jatropha
- (b) Maize
- (c) Pongamia
- (d) Sunflower

Answer

Ans: (b)

The African Union



About:

The African Union (AU) is a continental body consisting of the 55 member states that make up the countries of the African Continent.

Formation:

In 1963, the Organization of African Unity was founded by the independent states of Africa. The organization aimed to promote cooperation between African states.

The 1980 Lagos Plan of Action was adopted by the Organization of African Unity. The plan suggested that Africa should minimize reliance upon the West by promoting intra-African trade.

In 2002, the Organization of African Unity was succeeded by the African Union, which had as one of its goals to accelerate the "economic integration of the continent".

What has the African Union Achieved in 20 Years?

African Continental Free Trade Area:

It was established in 2018 by the African Continental Free Trade Agreement (AfCTA).

AfCFTA seeks to create a single continental market for goods and services, with free movement of business persons and investments, and thus pave the way for accelerating the establishment of the Continental Customs Union and the African customs union.

The AfCFTA preliminary work is on steps such as incremental tariff reduction, elimination of non-tariff barriers, supply chains and dispute settlement.

It is expected to boost intra-African trade by about USD35 billion by the end of 2022.

The larger market area will likely attract investment for continental infrastructure development.

The increased trade will create jobs, enhance Africa's global competitiveness, improve social welfare and position Africa for greater industrialisation.

Diplomatic Achievement:

AU has established a permanent mission in Beijing, China, to strengthen economic, commercial and cultural ties with Africa's largest trading partner.

This consolidates Africa's global profile and ability to speak with one voice on world affairs.

Women's Economic Financial Inclusion:

AU championed a 10-year continental declaration aimed at gender equality and women's empowerment that was introduced in February 2020.

This declaration, called the Decade of Women's Financial and Economic Inclusion, sees African leaders commit to taking action for gender inclusion towards sustainable development at national, regional, and continental levels.

Challenges the African Union is Facing

Unconstitutional Hold on Power:

Africa has seen a troubling resurgence of military coups and leaders using unconstitutional means to cling to power.

There have been at least 32 coups and coup attempts since 2013.

Five out of the seven coup attempts since 2020 succeeded.

The coup leaders in the five countries — Burkina Faso, Chad, Guinea, Mali and Sudan — violently suppressed pro-democracy protesters.

The death toll from the suppression of anti-coup protests in Sudan, for instance, is over 100. Over 18 million Sudanese are threatened by food insecurity.

UNSC:

The UN Security Council is yet to give Africa at least two permanent seats.

Over two-thirds of the council's agenda concerns Africa, yet the continent is excluded from permanent representation.

How has Indian African Relations Been?

Social Infrastructure:

The India-Africa social infrastructure (education, health, skills) cooperation is multidimensional, comprehensive, and involves national, state, and subnational actors working toward augmenting African institutional and individual capacities.

Common Geo-Political Interests:

India and Africa have common interests on international issues, UN reforms, counter-terrorism, peacekeeping, cybersecurity, and energy security.

Economic Cooperation:

India's economic engagement with Africa is substantive.

In the last decade and a half, trade between India and Africa has multiplied and diversified—bilateral trade of USD63.3 billion in 2018-19 made India the third-largest trading partner for the continent.

Support in Fight Against Covid-19:

Under the e-ITEC initiative, India has shared Covid-19 management strategies, training webinars exclusively to train healthcare professionals from Africa by Indian health experts.

India is also sending consignments of essential medicines, including hydroxychloroquine (HCQ) and paracetamol, to many African countries in addition to doctors and paramedics.

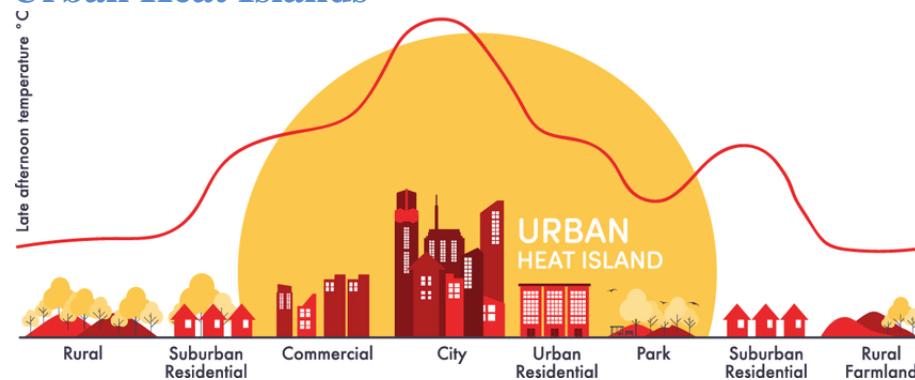
Both sides signed three MOUs:

MoU on cooperation in Youth Affairs

Cultural Exchange Programme (CEP)

Visa waiver Agreement for diplomats/officials

Urban Heat Islands



Context - several parts of India are experiencing severe heat waves. Urban areas and cities are the places which have higher temperatures than rural places. This phenomenon is referred to as "Urban Heat Island".

What is an Urban Heat Island?

Urban heat island may be defined as the local and temporary phenomenon in which certain pockets within a city are experiencing higher heat load than its surrounding area.

This rise of heat basically happens due to buildings and houses of cities made up of concrete where the heat is trapped and not able to dissipate easily.

Urban heat island is basically induced due to trapped heat between establishments made up of concrete.

Why are Cities Hotter than Rural Areas?

It has been observed that greener localities experienced lower temperatures than non-green localities.

Green vegetation like plants, trees and forests are prominent factors to regulate the incidences of the urban heat islands.

Rural areas are blessed with more green cover in the form of plantations, farmlands, forests, and trees than urban areas.

In urban areas is the basic cause of Urban Heat Island in urban areas.

Frequent construction of Highrise structures, roads, parking spaces, pavements, and public transportation transit lines have accelerated the incidences of urban heat islands.

It occurs by black or any dark colored material.

Buildings in cities are often made of glass, bricks, cement, and concrete. All of them are dark-colored materials, which attract and absorb more heat

What are the Causes of Urban Heat Island?

Manifold increase in construction activities: For building simple urban dwellings to complex infrastructures, carbon absorbing material like asphalt and concrete is needed for the expansion of cities. They trap huge amounts of heat which increases the mean surface temperatures of urban areas.

Dark surfaces: Many buildings found in urban areas have dark surfaces, thereby decreasing albedo and increased absorption of heat.

Air conditioning: Buildings with dark surfaces heat up more rapidly and require more cooling from air conditioning, which requires more energy from power plants, which causes more pollution. Also, air conditioners exchange heat with atmospheric air, causing further local heating. Thus, there is a cascade effect that contributes to the expansion of urban heat islands.

Urban Architecture: Tall buildings, and often accompanying narrow streets, hinder the circulation of air, reduce the wind speed, and thus reduce any natural cooling effects. This is called the Urban Canyon Effect.

Lack of Trees and green areas: which impedes evapotranspiration, shade and removal of carbon dioxide, all the processes that help to cool the surrounding air.

How can Urban Heat Islands be Reduced?

Increase Area Under Green Cover: Plantation and effort to increase the area under green cover are the primary requirement to cut heat load within urban areas.

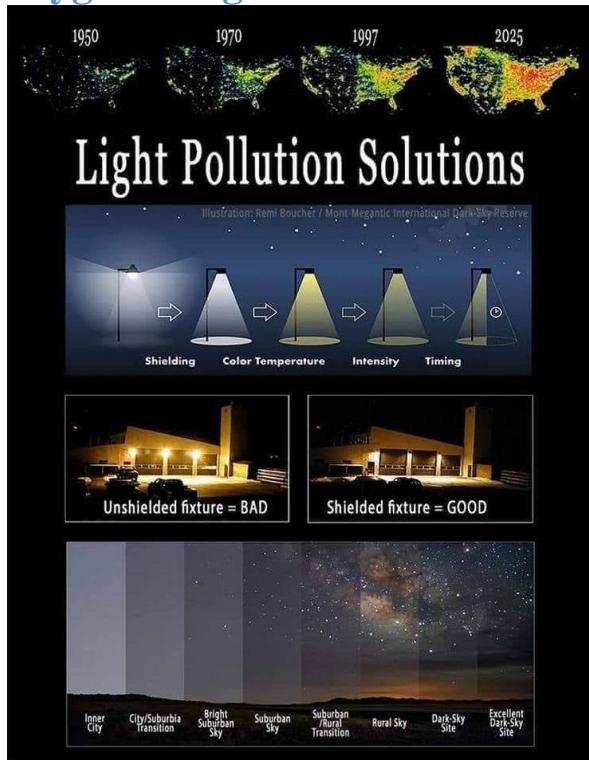
Passive Cooling to Reduce Urban Heat Islands: Passive cooling technology, a widely-used strategy to create naturally ventilated buildings, can be a vital alternative to address the urban heat island for residential and commercial buildings

Other methods of heat mitigation include using appropriate construction materials.

Roof and terraces should be painted in white or light colors to reflect heat and reduce the absorption.

Terrace plantation and kitchen gardening should be promoted.

Skyglow: Light Pollution



About Skyglow:

The Skyglow, is an omnipresent sheet of light across the night sky in and around cities that can block all but the very brightest stars from view.

The brightening of the night sky over inhabited areas because of streetlights, security floodlights and outdoor ornamental lights cause the Skyglow.

This light floods directly into the eyes of the Nocturnal (active at night) and also into the skies and misleads their path.

'Skyglow' is one of the components of light pollution.

Light Pollution:

About: The inappropriate or excessive use of artificial light – known as Light Pollution (LP) – can have serious environmental consequences for humans, wildlife, and our climate.

Components of light pollution include:

Glare: Excessive brightness that causes visual discomfort

Skyglow: Brightening of the night sky over inhabited areas

Light trespass: Light falling where it is not intended or needed

Clutter: Bright, confusing and excessive groupings of light sources.

Causes:

Light Pollution is a side effect of industrial civilization.

Its sources include building exterior and interior lighting, advertising, commercial properties, offices, factories, streetlights, and illuminated sporting venues.

Effects:**Wastes Energy and Money:**

Lighting that emits too much light or shines when and where it's not needed is wasteful. Wasting energy has huge economic and environmental consequences.

Disrupting the ecosystem and wildlife:

Plants and animals depend on Earth's daily cycle of light and dark rhythm to govern life-sustaining behaviors such as reproduction, nourishment, sleep and protection from predators.

Scientific evidence suggests that artificial light at night has negative and deadly effects on many creatures including amphibians, birds, mammals, insects and plants.

Ex: A study has now shown how nocturnal dung beetles are forced to search for cues in their immediate surroundings when they can no longer navigate using natural light from the night sky.

Harming human health:

Like most life on Earth, humans adhere to a Circadian Rhythm — our biological clock — a sleep-wake pattern governed by the day-night cycle. Artificial light at night can disrupt that cycle.

Solutions:

The simple solution is to reduce animals' experience of direct and indirect light pollution: turning off unnecessary lights at night.

Where lights cannot be turned off, they can be shielded so that they do not shed light into the surrounding environment and sky.

The International Dark-Skies Association has certified more than 130 'International Dark Sky Places', where artificial lighting has been adjusted to reduce skyglow and light trespass. However, nearly all are in developed countries in the northern hemisphere.

Monkeypox

Monkeypox virus

Everything You Need to Know About Monkeypox Virus

- Monkeypox is a rare viral disease similar to smallpox in appearance
- An infected animal transmits the virus to humans through a bite or direct contact
- Currently, there are 92 confirmed monkeypox cases in 12 countries
- Fever, muscle pain, headache, swollen lymph nodes, and tiredness are the initial signs
- Vaccination against smallpox can be effective in preventing monkeypox

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GS Paper - 2

Health

GS Paper - 3

About:

It is a viral zoonotic disease (transmission from animals to humans) and is identified as a pox-like disease among monkeys hence it is named Monkeypox. It is endemic to Nigeria.

It is caused by monkeypox virus, a member of the Orthopoxvirus genus in the family Poxviridae.

The natural host of the virus remains undefined. But the disease has been reported in many animals.

Animals known to be sources of Monkeypox virus include monkeys and apes, a variety of rodents (including rats, mice, squirrels and prairie dogs) and rabbits.

Outbreaks:

It was first reported in 1958, in monkeys in the Democratic Republic of Congo (DRC) and in humans in 1970, also in the DRC.

In 2017, Nigeria experienced the largest documented outbreak, 40 years after the last confirmed case.

Subsequently, the disease has been reported in many West and Central African countries.

Symptoms:

Infected people break out in a rash that looks a lot like chicken pox. But the fever, malaise, and headache from Monkeypox are usually more severe than in chicken pox infection.

In the early stage of the disease, Monkeypox can be distinguished from smallpox because the lymph gland gets enlarged.

Vulnerability:

It spreads rapidly and can cause one out of ten deaths if infected.

Treatment and Vaccine:

There is no specific treatment or vaccine available for Monkeypox infection. In the past, the anti-smallpox vaccine was shown to be 85% effective in preventing Monkeypox.

But the world was declared free of smallpox in 1980 so the vaccine isn't widely available anymore.

Treatment: The clinical presentation of monkeypox resembles that of smallpox, a related orthopoxvirus infection which was declared eradicated worldwide in 1980.

Vaccinia vaccine used during the smallpox eradication programme was also protective against monkeypox.

A new third generation vaccinia vaccine has now been approved for prevention of smallpox and monkeypox. Antiviral agents are also being developed.

UPSC PYQ - 2014

Consider the following diseases:

Diphtheria

Chickenpox

Smallpox

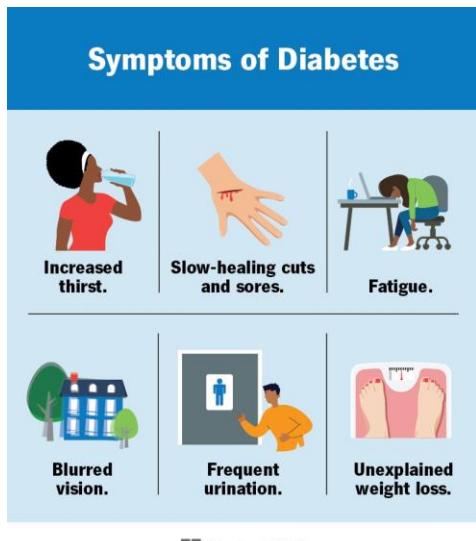
Which of the above diseases has/have been eradicated in India?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1, 2 and 3
- (d) None

Answer

Ans: (b)

Diabetes



What do we Need to know about Diabetes?

About: Diabetes is a Non-Communicable Disease (NCD) that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin, it produces.

Types of Diabetes:

Type 1 Diabetes:

It is also known as juvenile diabetes (as it mostly affects children of age 14-16 years), this type occurs when the body fails to produce sufficient insulin.

It is predominantly diagnosed in children and adolescents. Although the prevalence is less, it is much more severe than type 2.

Type 2 Diabetes:

It affects the way the body uses insulin. While the body still makes insulin.

Type 2 diabetes can occur at any age, even during childhood. However, this type of diabetes occurs most often in middle-aged and older people.

Gestational Diabetes: This type occurs in women during pregnancy when the body sometimes becomes less sensitive to insulin. Gestational diabetes does not occur in all women and usually resolves after giving birth.

Impacts of Diabetes: It affects the five major organs namely, Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina).

Factors Responsible: Factors that lead to increase in diabetes are an unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc.

How Rare is Type-1 Diabetes?

Out of 10 lakh children and adolescents living with type 1 diabetes in the world, India holds the highest numbers.

Out of 2.5 lakh people living with type 1 diabetes in India, 90,000 to 1 lakh are under the age of 14 years.

Only 2% of all hospital cases of diabetes in the country are type 1 — but which is being diagnosed more frequently.

What Factors Exacerbate the Condition?

Genetic Factors: It plays a role in determining whether a person will get type-1 diabetes. The risk of disease in a child is:

3% when the mother has it

5% when the father has it

8% when a sibling has it.

Presence of Certain Genes: It is also strongly associated with the disease. For example, the prevalence of genes called DR3-DQ2 and DR4-DQ8 is 30-40% in patients with type 1 diabetes as compared to 2.4% in the general population.

DR3- DQ2 and DR4-DQ8 means the patient is permissive for celiac disease and is capable of developing or having the disease.

What are the Treatments?

Glucose monitoring: Continuous glucose monitoring devices can help monitor the blood glucose levels throughout 24 hours with the help of a sensor.

Artificial pancreas: It can automatically deliver insulin when required.

What are Related Initiatives?

National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS):

In order to prevent and control major NCDs, this initiative was launched by India in 2010 with focus on strengthening infrastructure, human resource development, health promotion, early diagnosis, management and referral.

World Diabetes Day:

It is observed on 14th November every year. The 2022 campaign will focus on access to diabetes education, access to diabetes education.

Global Diabetes Compact:

WHO launched a Global Diabetes Compact to better fight the disease while marking the centenary of the discovery of insulin.

India-US: The High Tech Boost



In News

India and the United States elevated their strategic partnership with the launch of an initiative on Critical and Emerging Technology or iCET.

Initiative on Critical and Emerging Technologies (iCET)

About:

The iCET involves collaboration in a range of areas including

Quantum computing,

Semiconductors,

5G and 6G wireless infrastructure, and

Civilian space projects such as lunar exploration.

Aim:

iCET aims to position the two countries as trusted technology partners by building technology value chains and supporting the co-development and co-production of items.

It also aims to address regulatory restrictions, export controls and mobility barriers through a standing mechanism

Defence:

On the defence front, iCET aims to expand India-US cooperation in fields like artificial intelligence and military equipment.

Industrial cooperation:

The iCET announced a new bilateral defence industrial cooperation roadmap that will be intended to accelerate defence technology cooperation.

Fighter jet engine production in India:

The USA under this has also agreed to produce a fighter jet engine in India for the indigenously manufactured Light Combat Aircraft.

Significance

Depth to the relationship:

If implemented with speed and purpose, the bilateral Initiative on Critical and Emerging Technologies (iCET) could lend a new strategic depth and breadth to the expanding engagement between India and the United States.

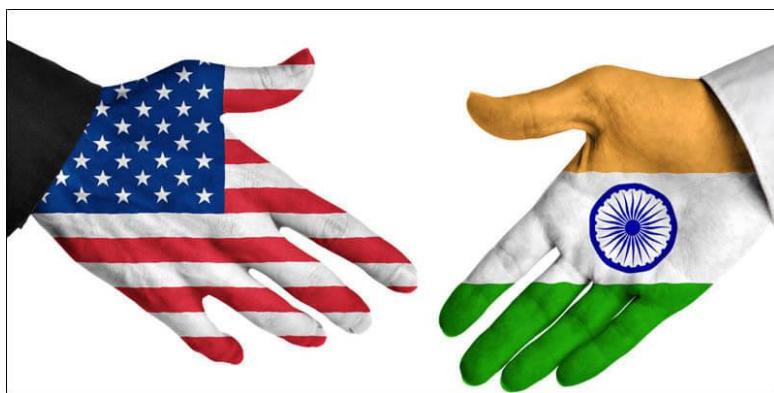
Against the rising and assertive China:

Lending urgency to the iCET is the growing convergence of Indian and US interests in managing the security, economic, and technological challenges presented by a rising and assertive China.

Reducing dependence on Russia:

India is also looking to reduce its over-dependence on Russian weapons and military technology and to produce more weapons at home in partnership with western countries.

India US relations



GS - 2, India and its Foreign relations

India- US Relations:

About:

India-US bilateral relations have developed into a "global strategic partnership", based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.

In 2015, both the countries issued a Delhi Declaration of Friendship and adopted a Joint Strategic Vision for Asia-Pacific and the Indian Ocean Region.

Energy and Climate Change:

As a priority initiative under the PACE (Partnership to Advance Clean Energy), the US Department of Energy (DOE) and the Government of India have established the Joint Clean Energy Research and Development Centre (JCERDC) designed to promote clean energy innovations by teams of scientists from India and the United States.

India-US Clean Energy Agenda 2030 Partnership was launched at the Leaders climate summit 2021.

Defence Cooperation:

Defence relationship has emerged as a major pillar of India-US strategic partnership with the signing of 'New Framework for India-US Defence Relations' in 2005 which was further updated for 10 years in 2015.

India and US inked important defence pacts in the last few years and also formalised the four nation alliance of QUAD (India, US, Japan and Australia).

The alliance is seen as an important counter to China in the Indo-Pacific

The Malabar exercise in November 2020 portrayed a high point in Indo-US strategic ties, it was the first time in 13 years that all four countries of QUAD came together sending a strong message to China.

India now has access to American bases from Djibouti in Africa to Guam in the Pacific. It can also access advanced communication technology used in US defence.

India and US have four foundational defence agreements:

Basic Exchange and Cooperation Agreement for Geospatial Intelligence (BECA).

General Security of Military Information Agreement (GSOMIA).

Logistics Exchange Memorandum of Agreement (LEMOA).

Communication Compatibility and Security Agreement (COMCASA).

India-US Counter-Terrorism Cooperation Initiative was signed in 2010 to expand collaboration on counter-terrorism, information sharing and capacity building.

A tri-services exercise— Tiger Triumph- was conducted in November 2019.

Bilateral and regional exercises include: Yudh Abhyas (Army), Vajra Prahar (Special Forces), RIMPAC, Red Flag.

Trade:

The US is India's second largest trading partner and a major destination for India's exports of goods and services.

The US replaced Mauritius as the second largest source of foreign direct investment into India during 2020-21.

The previous US government ended India's special trade status (GSP withdrawal) and also imposed several bans, India also retaliated with bans on 28 US products.

Current US government has allowed all the bans by the previous government to expire

Science & Technology:

Indian Space Research Organisation and National Aeronautics and Space Administration (NASA) are working together to realise a joint microwave remote sensing satellite for Earth observation, named NASA-ISRO Synthetic Aperture Radar (NISAR).

Indian Diaspora:

There is a growing presence of Indian diaspora in all spheres in the US. For example the current Vice-President (Kamala Harris) of the US has a strong Indian connection.

Textile Industry



About:

Textiles & garments industry is labour intensive sector that employs 45 mn people in India is second only to the agriculture sector in terms of employment.

India's textiles sector is one of the oldest industries in the Indian economy, and is a storehouse and carrier of traditional skills, heritage and culture.

It can be divided into two segments-

The unorganised sector is small scale and uses traditional tools and methods. It consists of handloom, handicrafts and sericulture (production of silk).

The organised sector uses modern machinery and techniques and consists of the spinning, apparel and garments segment.

Significance of the Textiles Sector:

It contributes 2.3% to Indian Gross Domestic Product, 7% of Industrial Output, 12% to the export earnings of India and employs more than 21% of total employment.

India is the 6th largest producer of Technical Textiles with 6% Global Share, largest producer of cotton & jute in the world.

Technical textiles are functional fabrics that have applications across various industries including automobiles, civil engineering and construction, agriculture, healthcare, industrial safety, personal protection etc.

India is also the second largest producer of silk in the world and 95% of the world's hand woven fabric comes from India.

Challenges of the Textiles Sector:

Highly fragmented: The Indian textile industry is highly fragmented and is being dominated by the unorganized sector and small and medium industries.

Outdated Technology: The Indian textile industry has its limitations of access to the latest technology (especially in small-scale industries) and failures to meet global standards in the highly competitive market.

Tax Structure Issues: The tax structure GST (Goods and Service Tax) makes the garments expensive and uncompetitive in domestic as well as international markets. Another threat is rising labour wages and workers' salaries.

Stagnant Exports: The export from the sector has been stagnating and remained at the USD 40-billion level for the last six years.

Lack of Foreign Investment: Due to challenges given above the foreign investors are not very enthusiastic about investing in the textile sector which is also one of the areas of concern.

Though the sector has witnessed a spurt in investment during the last five years, the industry attracted Foreign Direct Investment (FDI) of only USD 3.41 billion from April 2000 to December 2019.

Tonga:



Tonga, officially the Kingdom of Tonga, also called Friendly Islands, is a country in the southwestern Pacific Ocean.

It is an archipelago of more than 170 islands divided into three main island groups: Tongatapu in the south, Ha'apai in the centre, and Vava'u in the north.

Out of these groups of islands, only 36 islands are inhabited.

Tonga's western islands are volcanic (four with active volcanoes) and sit well above sea level. Those to the east are coral and are more low-lying.

Tonga has no direct neighbours. Nearby countries include Fiji to the west, the Cook Islands to the east and Samoa north.

Capital: Nuku'alofa

Population: It has a population of 100,000 inhabitants (in 2016). Almost two-thirds of Tonga's population live on the main island of Tongatapu, where also the capital city Nuku'alofa is located.

Spoken Languages: Tongan and English (both official).

Economy: Tonga has no strategic or mineral resources and relies on agriculture, fishing and the money sent home by Tongans living abroad.

Political System: It is a constitutional monarchy.

History:

It is the only kingdom in the Pacific since Taufa'ahau (King George) in 1875 declared Tonga a constitutional monarch. He also gave Tonga its first constitution.

In 1970 the former British protectorate acquired its independence and became a sovereign nation, but remains an active member of the Commonwealth.

THE HINDU ANALYSIS

19TH JUNE 2023

CREDITS : DEEPAK YADAV SIR



TOPICS DISCUSSED TODAY

1)	DAILY MAPPING QUESTION- TONGA
2)	INDIA'S BIGGEST NATURAL ARCH
3)	DENUE: PREVENTION AND IDENTIFICATION
4)	TUBERCULOSIS
5)	GANDHI PEACE PRIZE
6)	UNIVERSAL BASIC INCOME
7)	ADOPTION OF E20 FUEL AND GREEN HYDROGEN PRODUCTION
8)	THE GREAT INDIAN BUSTARD AND ASIATIC LION

Daily mapping question - Tonga



Tonga is located in the South Pacific Ocean.

Tonga map also shows that Tonga is an archipelago constituted of more than 170 islands. It covers a surface area of approximately 290 square miles (750 km²).

These islands are spread in the area of about 700,000 sq km (270,000 sq mi). Many of the islands are uninhabited. The climate type of Tonga is tropical.

Tonga is sub-divided into five administrative divisions: 'Eua, Ha'apai, Niuas, Tongatapu, and Vava'u. As of 2021, Tonga had a population of 104,494.

The government type of the Tonga is a constitutional monarchy, under which the King has all executive power and even the Prime Minister of country is appointed by the King. Tonga was admitted to the United Nations in 1999.

Moreover, the economy of the country is largely depends upon remittances because half of the country's population lives abroad and hence send money to their relatives. However, country has small manufacturing sector and subsistence agriculture. The major crops are Coconuts, bananas, coffee beans, vanilla beans, and root crops including taro, yams, and cassava.

UPSC PYQ - 2020

Q- In India, the term “Public Key Infrastructure” is used in the context of

- (a) Digital security infrastructure
- (b) Food security infrastructure
- (c) Health care and education infrastructure
- (d) Telecommunication and transportation infrastructure

Answer

Ans: (a)

Public Key Infrastructure (PKI) is a technology for authenticating users and devices in the digital world. Under this system, one or more trusted parties digitally sign documents certifying that a particular cryptographic key belongs to a particular user or device. The key can then be used as an identity for the user in digital networks.

Therefore, option (a) is the correct answer.

India's Biggest Natural Arch



Context :- A team of the Geological Survey of India recently discovered India's biggest natural arch during their survey of coal in Kenduadihi block in Odisha's Sundargarh district.

Why in News:

The state unit of the Geological Survey of India (GSI) has proposed to declare the 'Natural Arch' in the Kanika range of Sundargarh forest division, a Geo Heritage Site.

If it is done, it will be the biggest natural arch of the country to have the Geo Heritage tag.

Apart from the arch at Sundargarh, India has two others- one at Tirumala hills in Tirupati and another at Andaman and Nicobar. However, both of them are smaller compared to the one in Sundargarh.

About India's Biggest Natural Arch:

The Sundargarh natural arch, present in the ferruginous sandstone of the Upper Kamthi formation, dates back to about 184 to 160 million years in the lower to middle Jurassic age.

It is an oval-shaped arch and has a length of 30 metres at the base and is 12 metres high.

The alcove of the natural arch has a maximum height and width of 7 metres and 15 metres, respectively.

What are Geo Heritage Sites (GHSs)?

Geoheritage sites are sites of rare and unique geological, geo-morphological, mineralogical, petrological, and paleontological significance, including caves and natural rock sculptures of national and international interest.

GSI declares geo-heritage sites/ national geological monuments for protection and maintenance.

GSI or the respective State governments take necessary measures to protect these sites.

Dengue: Prevention And Identification



GS Paper - 3

Scientific Innovations & Discoveries

GS Paper - 2

Health

Dengue:

Dengue is a mosquito-borne tropical disease caused by the dengue virus (Genus Flavivirus), transmitted by several species of mosquito within the genus Aedes, principally Aedes aegypti.

This mosquito also transmits chikungunya, yellow fever and Zika infection.

There are 4 distinct, but closely related, serotypes (separate groups within a species of microorganisms that all share a similar characteristic) of the virus that cause dengue (DEN-1, DEN-2, DEN-3 and DEN-4).

Symptoms:

Sudden high fever, severe headaches, pain behind the eyes, severe bone, joint, and muscle pain, etc.

Diagnosis and Treatment:

Diagnosis of dengue infection is done with a blood test.

There is no specific medicine to treat dengue infection.

Status of Dengue:

Incidence of dengue has grown dramatically around the world in recent decades, with a vast majority of cases under-reported, according to the World Health Organization (WHO).

WHO estimates 39 crore dengue virus infections per year, of which 9.6 crore show symptoms.

India registered over 1 lakh dengue cases in 2018 and over 1.5 lakh cases in 2019, according to the National Vector-Borne Disease Control Programme (NVBDCP).

NVBDCP is the central nodal agency for prevention and control of six vector borne diseases i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya in India. It works under the Ministry of Health and Family Welfare

Controlling Dengue Using Bacteria:

Recently researchers from the World Mosquito Program have used mosquitoes infected with Wolbachia bacteria to successfully control dengue in Indonesia.

Method:

The scientists infected some mosquitoes with Wolbachia and then released them in the city where they bred with local mosquitoes, until nearly all mosquitoes in the area were carrying Wolbachia bacteria. This is called the Population Replacement Strategy.

At the end of 27 months, the researchers found that the incidence of dengue was 77% lower in areas where Wolbachia-infected mosquitoes had been released, as compared to areas without such deployments

Dengue Vaccine:

The dengue vaccine CYD-TDV or Dengvaxia was approved by the US Food & Drug Administration in 2019, the first dengue vaccine to get the regulatory nod in the US

UPSC PYQ - 2017

Q- Consider the following statements:

- 1) In tropical regions, Zika virus disease is transmitted by the same mosquito that transmits dengue.
- 3) Sexual transmission of Zika virus disease is possible.

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

Answer

Ans: (c)

Zika virus is a flavivirus which was first discovered in 1947 in monkeys and then in humans in Uganda in 1952.

Both Zika and Dengue have similarities in terms of symptoms of fever, skin rashes, conjunctivitis, muscle and joint pain, malaise, and headache. In addition to this, the mode of transmission is also same for both the diseases, i.e., both are spread by Aedes aegypti and Aedes albopictus species of mosquitoes. Hence, statement 1 is correct.

Modes of Zika Transmission

Mosquito bites

During pregnancy, from mother to child, which can cause microcephaly and other severe fetal brain defects. Zika virus has also been found in breast milk.

Sexual transmission from infected partner. Hence, statement 2 is correct.

Through blood transfusion.

Q. ‘Wolbachia method’ is sometimes talked about with reference to which one of the following?

- [A] Controlling the viral diseases spread by mosquitoes.
- [B] Converting crop residues into packing material.
- [C] Producing biodegradable plastics.
- [D] Producing biochar from thermo- chemical conversion of biomass.

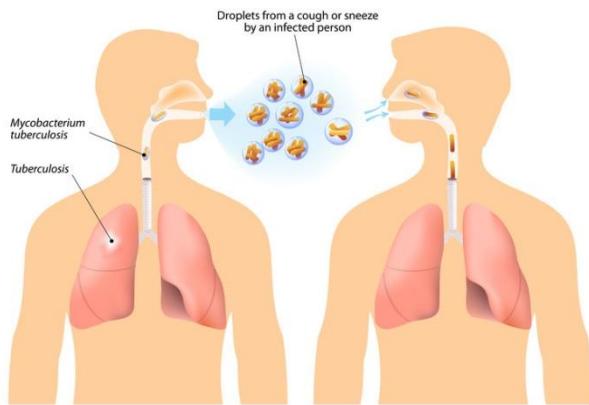
Answer

Answer is A.

The “Wolbachia method” is a technique used to control the spread of viral diseases transmitted by mosquitoes, such as dengue, Zika, and chikungunya. Wolbachia is a type of bacterium that can be introduced into mosquitoes to reduce their ability to transmit these diseases. When mosquitoes carrying Wolbachia mate with mosquitoes without Wolbachia, the resulting eggs do not hatch or produce offspring, thus reducing the population of disease-carrying mosquitoes.

Tuberculosis

TUBERCULOSIS



About:

TB is caused by a bacterium called *Mycobacterium tuberculosis*, belonging to the *Mycobacteriaceae* family consisting of about 200 members.

Some of *Mycobacteria* cause diseases like TB and Leprosy in humans and others infect a wide range of animals.

In humans, TB most commonly affects the lungs (pulmonary TB), but it can also affect other organs (extra-pulmonary TB).

TB is a very ancient disease and has been documented to have existed in Egypt as early as 3000 BC.

TB is a treatable and curable disease.

Transmission:

TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.

Symptoms:

Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.

Global Impact of TB:

In 2019, 87% of new TB cases occurred in the 30 high TB burden countries.

Eight countries accounted for two thirds of the new TB cases:

India, Indonesia, China, Philippines, Pakistan, Nigeria, Bangladesh and South Africa.

India reported 1.8 million TB cases between January and December 2020 as compared to 2.4 million the year before.

In 2019, MDR-TB remained a public health crisis and a health security threat.

MultiDrug Resistant Tuberculosis (MDR-TB) is a strain of TB that cannot be treated with the two most powerful first-line treatment anti-TB drugs. Extensively Drug Resistant Tuberculosis (XDR-TB) is a form of TB caused by bacteria that are resistant to several of the most effective anti-TB drugs.

BCG Vaccine:

BCG was developed by two Frenchmen, Albert Calmette and Camille Guerin, by modifying a strain of *Mycobacterium bovis* (that causes TB in cattle). It was first used in humans in 1921.

In India, BCG was first introduced in a limited scale in 1948 and became a part of the National TB Control Programme in 1962.

In addition to its primary use as a vaccine against TB, it protects against respiratory and bacterial infections of the newborns, and other mycobacterial diseases like Leprosy and Buruli's ulcer.

It is also used as an immunotherapy agent in cancer of the urinary bladder and malignant melanoma.

One intriguing fact about BCG is that it works well in some geographic locations and not so well in others. Generally, the farther a country is from the equator, the higher is the efficiency.

It has a high efficacy in the UK, Norway, Sweden and Denmark; and little or no efficacy in countries on or near the equator like India, Kenya and Malawi, where the burden of TB is higher.

Related Initiatives:

Global Efforts:

The WHO (World Health Organisation) has launched a joint initiative “Find. Treat. All. #EndTB” with the Global Fund and Stop TB Partnership.

WHO also releases the Global Tuberculosis Report.

India's Efforts:

National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025), The Nikshay Ecosystem (National TB information system), Nikshay Poshan Yojana (NPY- financial support), TB Harega Desh Jeetega Campaign.

Currently, two vaccines VPM (Vaccine Projekt Management) 1002 and MIP (Mycobacterium Indicus Pranii) have been developed and identified for TB, and are under Phase-3 clinical trial.

Gandhi Peace Prize



About

Institution of Award: The annual award was instituted by the Government of India in 1995 during the commemoration of the 125th birth anniversary of Mahatma Gandhi for those involved in social, economic and political transformation through non-violence.

Rewards: The award carries an amount of Rs. 1 crore, a Citation in a scroll, a plaque as well as an exquisite traditional handicraft/handloom item.

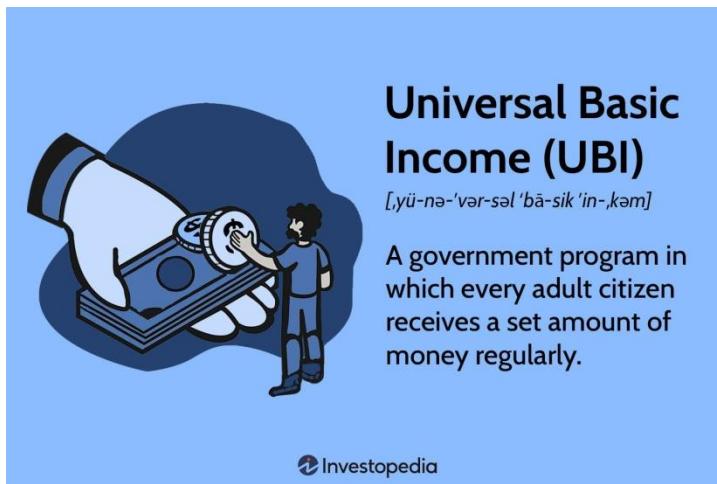
Conferred Upon: The prize can be given to individuals, associations, institutions or organizations.

It can be divided between two persons/institutions who are considered by the Jury to be equally deserving of recognition in a given year.

It is open to all persons regardless of nationality, creed, race or sex.

Selection Committee: The jury chaired by the Prime Minister and other members are the Chief Justice of India, the leader of the single largest Opposition party in the Lok Sabha, Lok Sabha Speaker and founder of Sulabh International

Universal Basic Income



Context :- Whether or not to provide a universal basic income (UBI) is an idea that does not appear to go away. If an earlier Chief Economic Advisor (CEA) Arvind Subramanian proposed it as a “conceptually appealing idea” in the Economic Survey for 2016-17, the current CEA, V Anantha Nageswaran, has disposed of it, stating it was not necessary for the country. Not so long ago, a UBI was also recommended in a report on inequality commissioned by the Economic Advisory Council to the prime minister. A member of NITI Aayog also backed the provision of a quasi-universal basic rural income.

The current CEA feels that a UBI is not needed, as India needs to focus more on economic growth to take care of the aspirations of its people, adding that it should not be on the agenda over the near-term.

Idea of Universal Basic Income

Universal Basic Income (UBI) is a social welfare proposal in which all the beneficiaries regularly receive a guaranteed income in the form of an unconditional transfer payment.

The goals of a basic income system are to alleviate poverty and replace other need-based social programs that potentially require greater bureaucratic involvement.

UBI is typically intended to reach all (or a very large portion of the population) with no (or minimal) conditions.

Pros and Cons of UBI

Pros:

Poverty Alleviation: Reduces poverty and income inequality by providing a minimum income floor for everyone, especially the most vulnerable and marginalized groups. It can also help people afford basic needs such as food, health, education, and housing.

A Health Stimulus: Improves physical and mental health by reducing stress, anxiety, and depression associated with poverty and financial insecurity. It can also enable people to access better health care, sanitation, and nutrition.

Simplified Welfare System: Can streamline the existing welfare system by replacing various targeted social assistance programs. This reduces administrative costs and eliminates the complexities associated with means-testing, eligibility requirements, and benefit cliffs.

Enhancing Individual Freedom: UBI provides individuals with financial security and greater freedom to make choices about their work, education, and personal lives.

Economic stimulus: Injects money directly into the hands of individuals, stimulating consumer spending and driving economic growth. It can boost local businesses, create demand for goods and services, and generate employment opportunities.

It can empower people to pursue entrepreneurship, take risks, and engage in creative or socially beneficial activities that may not be economically viable otherwise.

Cons:

Cost and Fiscal Sustainability: UBI is very expensive and would require higher taxes, spending cuts, or debt to finance it. It could also create inflation, distort the labor market, and reduce economic growth.

Creates Perverse Incentives: Decreases motivation to work and reduces productivity and efficiency. It could also create a culture of dependency, entitlement, and laziness. It could also discourage people from acquiring skills, education, and training.

The current Chief Economic Advisor has objected to UBI as it creates “perverse incentives” in dissuading people from making their own efforts to seek income-generating opportunities.

Inflationary Pressures: It could contribute to inflationary pressures. If everyone receives a fixed amount of money, it may drive up prices for goods and services as businesses adjust their pricing strategies to capture the additional income available in the market.

Potential for Dependency: UBI may create a reliance on government support, and there is a risk that some individuals might become complacent or dependent on the basic income, leading to reduced motivation for personal and professional growth.

Why is UBI not Feasible in India?

Affordability: India is an emerging nation with a large population but limited resources. It may be very costly to provide a basic income to each and every citizen, especially at a level that is sufficient to meet their basic needs.

The Economic Survey of 2016-17 estimated that a UBI of Rs. 7,620 per year for every Indian would cost about 4.9% of GDP, which is more than the combined expenditure on food, fuel, and fertilizer subsidies.

To finance UBI, the government would have to either raise taxes, cut other spending, or increase borrowing, all of which have negative consequences for the economy and society.

Political Feasibility: India has a complex and diverse political system, with multiple levels of government, parties, and interest groups. It may be difficult to build consensus and support for UBI across different stakeholders, such as politicians, bureaucrats, beneficiaries, and taxpayers.

There may also be resistance from those who benefit from the existing welfare schemes or those who oppose redistribution on ideological grounds.

Implementation Challenges: India faces many challenges in delivering public services and transfers effectively and efficiently. There are issues of identification, targeting, delivery, monitoring, and accountability that affect the quality and reach of the existing programmes.

UBI would require reliable data, technology, and institutions to execute it properly and avoid leakages, corruption, and exclusion errors.

Moreover, India has not achieved a Universal Aadhar enrolment yet so it could be problematic in beneficiary identification and target-based delivery of service.

Behavioural Effects: UBI may have unintended or undesirable effects on the behaviour of the recipients or the society at large.

For example, UBI may reduce the motivation to work or acquire skills, leading to lower productivity and efficiency.

It may also create a culture of dependency, entitlement, or laziness among the recipients.

It may also discourage people from participating in social or civic activities that contribute to the common good.

What Alternatives can India Take in Place of Universal Basic Income?

Quasi UBRI: QUBRI is a variant of universal basic income (UBI), which is defined as a transfer that is provided universally, unconditionally, and in cash. The idea was proposed by former Chief Economic Adviser to provide a direct cash transfer of Rs 18,000 per year to each rural household in India, except those which are “demonstrably well-off” to tackle agrarian distress.

Direct Benefits Transfers (DBT): This is a scheme that transfers subsidies or cash directly to the bank accounts of the beneficiaries, instead of through intermediaries or in-kind transfers. DBT aims to improve the efficiency, transparency, and accountability of welfare delivery, as well as to reduce leakages and corruption.

Schemes like PM Kisan, Pradhanmantri Jan Dhan Yojana etc are fine examples of success of DBT.

Conditional Cash Transfers (CCT): This is a scheme that provides cash to poor households on the condition that they fulfil certain requirements, such as sending their children to school, immunizing them, or attending health check-ups. CCT aims to improve the human capital and long-term outcomes of the poor, as well as to incentivize behavioural change.

Other Income Support Schemes: These are schemes that provide cash or in-kind assistance to specific groups of people who are in need, such as farmers, women, elderly, disabled, etc. These schemes aim to address the specific vulnerabilities and challenges faced by these groups, as well as to promote their empowerment and inclusion.

Employment Guarantee Schemes: India already has a successful example of this with the MGNREGA. Such schemes provide a legal guarantee of employment to rural households for a certain number of days in a year. Expanding and strengthening such programs can ensure that individuals have access to job opportunities and can earn a livelihood.

Skill Development and Training: Investing in skill development and vocational training programs can equip individuals with the necessary skills to secure sustainable employment. By focusing on skill enhancement, the government can enable individuals to find suitable jobs and improve their income prospects.

Effective implementation of schemes like PM Kaushal Vikas Yojana (PMKVY), Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) and PM Rojgar Protshan Yojana (PMR PY) etc.

Universal Basic Services: Instead of focusing on providing a universal basic income, India can prioritize the provision of essential services such as education, healthcare, clean water, and sanitation. By ensuring access to these services for all citizens, the government can improve the overall standard of living and reduce inequality.

Asset-Building Policies: These are policies that aim to help low-income people accumulate assets such as savings, education, housing, or business capital. They may include matching funds, tax incentives, subsidies, or grants for asset accumulation. The advocates of asset-building policies argue that they can enhance the long-term economic security, social mobility, and empowerment of low-income people better than UBI, and that they can foster a culture of saving and investment.

Inclusive Development: Focus on creating more opportunities and capabilities for people to participate in and contribute to the economy and society, rather than providing them with a fixed amount of money. Inclusive

development also addresses the structural causes of poverty and exclusion, such as discrimination, lack of access to education, health, infrastructure, and social protection.

Daily Mains Question

Q- Examine the merits and demerits of Universal Basic Income (UBI) and provide your opinion on its feasibility and effectiveness in the Indian context. (250 words)

प्र- यूनिवर्सल बेसिक इनकम (यूबीआई) के गुणों और दोषों की जांच करें और भारतीय संदर्भ में इसकी व्यवहार्यता और प्रभावशीलता पर अपनी राय दें। (250 शब्द)

Adoption of E20 Fuel and Green Hydrogen Production



Context :- In a recent announcement, the Union Minister of Petroleum and Natural Gas, highlighted that petrol blended with 20% ethanol, known as E20, will soon be available at 1,000 outlets of oil marketing companies (OMCs) nationwide.

The National Green Hydrogen Mission aim to achieve a production capacity of 5 Million Metric Tonnes (MMT) per annum by 2030, was also highlighted.

What is Ethanol Blending and E20 Fuel?

About:

Ethanol is an agricultural by-product which is mainly obtained from the processing of sugar from sugarcane, but also from other sources such as rice husk or maize.

Blending ethanol with petrol to burn less fossil fuel while running vehicles is called Ethanol Blending.

E20 fuel is a blend of 20% ethanol and 80% petrol. The E20 was launched by the Prime Minister of India in February 2023 in Bengaluru. This pilot covers at least 15 cities and will be rolled out across the country in a phased manner.

India has been increasing its ethanol blending in petrol from 1.53% in 2013-14 to 10.17% in 2022.

The government has advanced its target to achieve 20% ethanol blending in petrol from 2030 to 2025.

During our G20 presidency, the government has also proposed to launch a global biofuel alliance with countries like Brazil to promote biofuels internationally.

Advantages:

E20 fuel has several advantages over conventional petrol, such as:

It reduces vehicular tailpipe emissions by lowering the carbon monoxide, hydrocarbons and nitrogen oxides levels.

It improves engine performance and reduces maintenance costs by preventing corrosion and deposits.

It reduces the import bill for crude oil by substituting domestic ethanol production.

It is estimated that a 5% blending (105 crore litres) can result in replacement of around 1.8 million barrels of crude oil.

India imported 185 million tonnes of petroleum at a cost of USD 551 billion in 2020-21. A successful E20 programme can save the country USD 4 billion or Rs 30,000 crore per annum.

Challenges:

Shift Towards Sugarcane Production: In order to achieve a 20% blend rate, almost one-tenth of the existing net sown area will have to be diverted for sugarcane production.

Any such land requirement is likely to put a stress on other crops and has the potential to increase food prices.

Storage Constraint: Annual capacity of required bio-refineries is stipulated to be 300-400 million litres, which is still not enough to meet the 5% petrol-ethanol blending requirement.

Storage is going to be the main concern, for if E10 supply has to continue in tandem with E20 supply, storage would have to be separate which then raises costs.

What is Green Hydrogen?

About:

Green hydrogen is hydrogen produced by electrolysis of water using renewable or green energy.

It is considered the cleanest form of energy, as it does not emit any greenhouse gases when used.

India has the potential to become a leader and a superpower in green hydrogen production, according to the International Energy Agency (IEA).

India has abundant renewable capacity, especially solar power, which can be used to produce green hydrogen at low cost.

India has also set a target of producing 5 million metric tonnes of green hydrogen per annum by 2025-26 under its National Hydrogen Mission.

The private sector is also actively engaged in pursuing green hydrogen production and has attracted significant investment from international sources.

Applications:

Decarbonizing Energy Systems: Green hydrogen can be used as a clean energy carrier and stored for later use.

It can be utilised in sectors such as power generation, heating, and transportation to replace fossil fuels, thereby reducing carbon emissions.

Production of Green Ammonia: Green hydrogen has the potential to replace traditional fertilisers in agriculture through the production of ammonia using renewable energy sources.

Green ammonia produced with help of green hydrogen is carbon-free, it has other benefits over traditional fertilisers, including improved efficiency and reduced soil acidity.

Challenges:

Cost: Currently, the production of green hydrogen is more expensive compared to hydrogen produced from fossil fuels through steam methane reforming.

The high cost is primarily due to the capital investment required for renewable energy infrastructure.

Scale and Infrastructure: Establishing a comprehensive green hydrogen infrastructure, including production, storage, and transportation, is a significant challenge.

Scaling up production capacity and building a distribution network for hydrogen require substantial investments.

Additionally, retrofitting existing infrastructure or creating new pipelines, storage facilities, and refuelling stations adds to the complexity and cost.

Impact on Resources: About 9 kilograms (kg) of water is required per kg of hydrogen.

The production of green hydrogen requires vast amounts of resources: land, water, and renewable energy. This can fuel land-use and water conflicts, human rights violations, energy poverty, and the delay of the de-carbonisation of the electricity grid in producer countries

Energy Efficiency: The process of electrolysis requires large amounts of electricity to split water into hydrogen and oxygen.

While renewable energy sources can provide a clean electricity input, the overall energy efficiency of the process is relatively low.

UPSC PYQ - 2010

Q- Given below are the names of four energy crops. Which one of them can be cultivated for ethanol?

- (a) Jatropha
- (b) Maize
- (c) Pongamia
- (d) Sunflower

Answer

Ans: (b)

UPSC PYQ - 2023

Consider the following heavy industries:

- 1- Fertiliser plants

2- Oil refineries

3- Steel plants

Green hydrogen is expected to play a significant role in decarbonizing how many of the above industries?

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

Answer

Answer is C.

Great Indian Bustards and Asiatic Lions

Context:- As Cyclone Biporjoy approaches the port of Jakhau in Kutch, Gujarat, there are concerns about the impact on the Great Indian Bustards (GIB) in Naliya region and the Asiatic Lions in the Gir forest.

Concerns

Asiatic Lions:



The Gir forest is home to nearly 700 Asiatic lions, which are found only in this region and are a vital species for conservation.

Conservationists have raised concerns about the vulnerability of having the entire lion population concentrated in one area. Epidemics and natural disasters like the 2018 outbreak of Babesiosis and Cyclone Tauktae in 2019 pose significant risks to the survival of the lions.

In 2013, the Supreme Court issued a directive for the transfer of Asiatic lions from Gujarat's Gir forest to Madhya Pradesh's KNP (Kuno National Park).

The Gujarat government's plea to prevent the translocation of lions was rejected by the court, despite their assertion that these animals were a source of pride for the state.

Great Indian Bustard:

There are only four remaining females in the grasslands of Naliya, Gujarat. As birds, they have better mobility and may be able to sense danger and fly away from the cyclone's path.

However, the impact on their habitat due to flooding caused by heavy rainfall remains a concern.

Efforts are being made to ensure the safety of wildlife during the cyclone. The authorities have cancelled leaves, deployed rescue teams, and equipped hospitals to provide medical assistance to injured animals.

Key Points Related to Asiatic Lions**About:**

The Asiatic Lion (also known as the Persian Lion or Indian Lion) is a member of the *Panthera Leo Leo* subspecies that is restricted to India.

Its previous habitats consisted of West Asia and the Middle East before it became extinct in these regions.

Asiatic lions are slightly smaller than African lions.

Distribution:

Asiatic lions were once distributed to the state of West Bengal in the east and Rewa in Madhya Pradesh, in central India.

At present Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion.

Protection Status:

IUCN Red List: Endangered

CITES: Appendix I

Wildlife (Protection) Act 1972: Schedule I

Gir National Park

Gir National Park and Wildlife Sanctuary is located in the Junagadh district of Gujarat.

It was declared as a sanctuary in 1965 and a national park in 1975.

The Gir Forests is the largest compact track of dry deciduous forests in the semi-arid western part of India.

Gir is often linked with "Maldharis" (a traditional pastoral people) who have survived through the ages by having a symbiotic relationship with the lion.

Great Indian Bustard

About:

The Great Indian Bustard (*Ardeotis nigriceps*), the State bird of Rajasthan, is considered India's most critically endangered bird.

It is considered the flagship grassland species, representing the health of the grassland ecology.

Its population is confined mostly to Rajasthan and Gujarat. Small populations occur in Maharashtra, Karnataka and Andhra Pradesh

Vulnerability:

The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.

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 I

What are the Measures to Protect GIB?

Species Recovery Programme:

It is kept under the species recovery programme under the Integrated development of Wildlife Habitats of the Ministry of Environment, Forests and Climate Change (MoEFCC).

National Bustard Recovery Plans:

It is currently being implemented by conservation agencies.

Conservation Breeding Facility:

MoEF&CC, Rajasthan government and Wildlife Institute of India (WII) have also established a conservation breeding facility in Desert National Park at Jaisalmer in June 2019.

Project Great Indian Bustard:

It has been launched by the Rajasthan government with an aim of constructing breeding enclosures for the species and developing infrastructure to reduce human pressure on its habitats.

UPSC PYQ - 2019

Consider the following statements:

- 1-Asiatic lion is naturally found in India only.
- 2-Double-humped camel is naturally found in India only.
- 3-One-horned rhinoceros is naturally found in India only.

Which of the statements given above is/are correct?

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

Answer

Ans: (a)

UPSC PYQ - 2012

Q. Which one of the following groups of animals belongs to the category of endangered species?

- (a) Great Indian Bustard, Musk Deer, Red Panda and Asiatic Wild Ass
- (b) Kashmir Stag, Cheetal, Blue Bull and Great Indian Bustard
- (c) Snow Leopard, Swamp Deer, Rhesus Monkey and Saras (Crane)
- (d) Lion-tailed Macaque, Blue Bull, Hanuman Langur and Cheetal

Answer

Ans: (a)