Current Affairs Update (March 29-Apr 4)

National

Unique Land Parcel Identification Number (ULPIN) scheme

The **Unique Land Parcel Identification Number (ULPIN) scheme** has been launched in 10 States this year and will be rolled out across the country by March 2022. This plan has been laid out in a parliamentary standing committee report submitted to the Lok Sabha, as part of **the Digital India Land Records Modernisation Programme (DILRMP)** which began in 2008 and has been expanded several times.

About the Scheme: Under the scheme, a 14-digit identification number will be issued to every plot of land in the country.

It is being described as "the Aadhaar for land" — a number that would uniquely identify every surveyed parcel of land and prevent land fraud, especially in rural India, where land records are outdated and disputed.

The identification will be based on the longitude and latitude of the land parcel, and is dependent on detailed surveys and geo-referenced cadastral maps.

Electoral bonds

Announced in the 2017 Union Budget, electoral bonds are **interest-free bearer instruments used to donate money anonymously to political parties.**

Highlights:

- A bearer instrument **does not carry any information about the buyer or payee.**
- **The holder of the instrument** (which is the political party) is presumed to be its owner.
- The bonds are sold in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore, and State Bank of India is the only bank authorised to sell them.
- Donors can buy and subsequently donate bonds to a political party, which can encash the bonds through its verified account within 15 days.
- There is **no limit on the number of bonds an individual or company can purchase.**
- If a party hasn't enchased any bonds within 15 days, SBI deposits these into **the Prime Minister's Relief Fund.**

Why have they been challenged?

- The printing of these bonds & SBI commission for facilitating the sale and purchase of the bonds is paid from the taxpayers' money by the central government.
- Anonymity provided to donors of electoral bonds.
- Through an amendment to the Finance Act 2017, the Centre has exempted parties from disclosing donations received through electoral bonds.
- According to transparency activists, these infringe **the citizen's 'Right to Know' and make the political class even more unaccountable.**

What is the EC's stand?

The EC had **objected to amendments in the Representation of the People Act that exempt political parties from disclosing donations** through this route.

In a situation where the contribution received through electoral bonds are not reported, on perusal of the contribution report of political parties, it cannot be ascertained whether the political party has taken any donation in violation of provision under **Section 29(b) of the RP Act** which prohibits the political parties from taking donations from government companies and foreign sources.

Uniform Civil Code

Chief Justice of India (CJI) S A Bobde recently lauded **Goa's Uniform Civil Code,** and encouraged "intellectuals" indulging in "academic talk" to visit the state to learn more about it. UCC in Goa applies in marriage and succession, governing all Goans irrespective of religious affiliation.

Article 44 of the Constitution says that there should be a Uniform Civil Code. According to this article, "The State shall endeavor to secure for the citizens a uniform civil code throughout the territory of India". Since the Directive Principles are only guidelines, it is not mandatory to use them.

Status of Personal Law in India: Personal law subjects like marriage, divorce, inheritance come under **Concurrent list.**

What is uniform civil code?

A generic set of governing laws for every citizen without taking into consideration the religion.

Concern: Cultural diversity cannot be compromised to the extent that our urge for uniformity itself becomes a reason for threat to the territorial integrity of the nation.

International

Rooppur Nuclear power plant

Recently, India made a deal with Bangladesh where Indian companies will develop the transmission lines of Bangladesh Rooppur Nuclear power plant.

About Rooppur Nuclear power plant:

- It is an under-construction **2.4 GWe** nuclear power plant in Bangladesh.
- It is being constructed at Rooppur (Rupppur) in the **Pabna District of Bangladesh**, on the bank of Padma River.
- There are two units of plants which are expected to be completed in 2022 and 2024 respectively. Each will produce 1200MW of electricity.
- It has significance as it will be the **Bangladesh's first nuclear power plant**.
- The Rooppur project is the first initiative under the Indo-Russian deal to undertake atomic energy projects in third countries.
- A **tripartite Memorandum of Understanding** (MoU) in March 2018, was signed at Moscow, Russia between Russia, Bangladesh and India for the Rooppur Nuclear Power Project.
- It will be for the first time when any Indian company will be involved in any nuclear project out of the country. Since **India is not a Nuclear Supplier group (NSG) member**, it cannot participate directly in construction of Atomic power reactors.

Issues discussed during PM 2 day visit to Bangladesh

- **Rohingyas' Issue:** Safe and sustainable facilitation of displaced people from Rakhine.

- **Teesta River**: Requested for early finalization of draft for water sharing of the Teesta & Feni River.

- **BBIN Project:** Facilitation of Bangladesh exports to Nepal and Bhutan via India.

- **Nuclear Power Plant:** Transmission line of Bangladesh's Ruppur Nuclear power plant to be developed by Indian companies.

- **Maitri Diwas:** December 6, on which India formally recognized Bangladesh, will be celebrated as Maîtri Diwas.

Exercise SHANTIR OGROSHENA 2021

It is a multinational military exercise in Bangladesh. Indian army will take part this year. It will be held at Bangladesh to commemorate the birth centenary of Bangladesh 'Father of the Nation' Bangabandhu Sheikh Mujibur Rahman.

Military observers from the USA, UK, Turkey, Kingdom of Saudi Arabia, Kuwait and Singapore will also be in attendance throughout the exercise.

BIMSTEC

17th BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) Ministerial meet, **chaired by Sri Lanka**, was held recently. The meeting drew participation from all **the seven-member States,** including Myanmar which is witnessing a large-scale crackdown against anti-military protesters.

BIMSTEC: In an effort to integrate the region, the grouping was **formed in 1997.** It is a bridge between South Asia and Southeast Asia. It **includes all the major countries of South Asia, except Maldives, Afghanistan and Pakistan.**

Members: Bangladesh, India, Sri Lanka, Thailand, Myanmar, Nepal and Bhutan.

Significance of grouping: Over one-fifth (22%) of the world's population live in the seven countries around it, and they have a combined GDP close to $2.7 trillion. The Bay also has vast untapped natural resources. One-fourth of the world's traded goods cross the Bay every year.

Why is BIMSTEC important for India?

As the region's largest economy, India has a lot at stake.

- BIMSTEC **connects not only South and Southeast Asia**, but also the **ecologies of the Great Himalayas and the Bay of Bengal**.
- For India, it is a natural platform to fulfil our key foreign policy priorities **of 'Neighborhood First' and 'Act East'.**
- For New Delhi, one key reason for engagement is in the vast potential that is unlocked with stronger connectivity. Almost 300 million people, or roughly **one-quarter of India's population, live in the four coastal states adjacent to the Bay of Bengal** (Andhra Pradesh, Orissa, Tamil Nadu, and West Bengal).
- From the strategic perspective, the Bay of Bengal, a **funnel to the Malacca straits**, has emerged a key theatre for an increasingly assertive China in maintaining its access route to the Indian Ocean.
- As China mounts assertive activities in the Bay of Bengal region, with increased submarine movement and ship visits in the Indian Ocean, it is in India's interest to consolidate its internal engagement among the BIMSTEC countries.

Science-Tech & Environment

NISAR

NASA and ISRO are collaborating on developing a satellite called NISAR.

About NISAR:

- The satellite will be launched in 2022 from the Satish Dhawan Space Center in Sriharikota, India, into a near-polar orbit.
- It will **scan the globe every 12 days** over the course of its three-year mission of imaging the Earth's land, ice sheets and sea ice to give an "unprecedented" view of the planet.
- It will detect movements of the planet's surface as small as 0.4 inches over areas about half the size of a tennis court.
- NASA will provide one of the **radars for the satellite**, a high-rate communication subsystem for science data, GPS receivers and a payload data subsystem.
- ISRO will provide the **spacecraft bus**, the second type of radar (called the S-band radar), the launch vehicle and associated launch services.
- NISAR will be equipped with the **largest reflector antenna** ever launched by NASA and its primary goals include tracking subtle changes in the Earth's surface, spotting warning signs of imminent volcanic eruptions, helping to monitor groundwater supplies and tracking the rate at which ice sheets are melting.

Synthetic aperture radar: The name **NISAR is short for NASA-ISRO-SAR.** SAR here refers to **the synthetic aperture radar** that NASA will use to measure changes in the surface of the Earth.

Essentially, SAR refers to a technique for producing high-resolution images. Because of the precision, the radar can **penetrate clouds and darkness**, which means that it can **collect data day and night in any weather.**

Tiger Relocation Project

India's first inter-state tiger translocation project was **initiated in 2018** wherein two big cats, a male (Mahavir) from Kanha Tiger Reserve and a female (Sundari) from Bandhavgarh from Madhya Pradesh were relocated to **Satkosia Tiger Reserve** in Odisha, to shore up the tiger population in the state.

Need for: The relocation was meant to serve two purposes:

1. Reducing tiger population in areas with excess tigers to majorly reduce territorial disputes.

2. To reintroduce tigers in areas where the population has considerably reduced due to various reasons.

Why in News? Recently, Tigress Sundari was relocated back to MP. This was mainly because of severe protests by villagers living on the fringes of the reserve.

Carnivac-Cov Vaccine

The **world's first animal vaccine against the novel coronavirus** has been named as Carnivac-Cov. As per Russian scientists, the use of this vaccine can prevent the development of virus mutations in animals. Carnivac-Cov vaccine for animals has been developed by a unit of Rosselkhoznadzor (Federal Service for Veterinary and Phytosanitary Surveillance).

Mahendragiri

The **Odisha** state government has proposed a **second biosphere reserve** in the southern part of the state at Mahendragiri. It is a mountain in the Gajapati district of the state. It is at an altitude of 1,501 metres. Mahendragiri is also the **second-highest peak** in the state. **Similipal** Biosphere Reserve is the first biosphere reserve of Odisha.

Economics

Global Gender Gap Report 2021

- The **World Economic Forum** has released the Global Gender Gap Report 2021.
- **India** has been **ranked 140th among 156 countries** on the index.
- Most of the decrease has been seen on the political empowerment subindex, where India regressed 13.5 percentage points. The women ministers have declined to 9.1% in 2021 from 23.1% in 2019).
- One of the drivers of this decline is a decrease in women's labor force participation rate, which decreased from 24.8% to 22.3%.
- The share of women in professional and technical roles also decreased to 29.2%.
- In the South Asia region, only two countries- **Pakistan and Afghanistan** have been ranked below India.
- **Iceland** has topped the index for the 12th time and is the most gender-equal country in the world.
- The **top 10** most gender-equal countries are Iceland, Finland, Norway, New Zealand, Rwanda, Sweden, Ireland, and Switzerland.

Awards

Dadasaheb Phalke Award

Rajinikanth has been conferred with the Dadasaheb Phalke Award for the year 2019.

Dadasaheb Phalke award is India's highest award in cinema. It is presented annually at the National Film Awards ceremony by the Directorate of Film Festivals (an organisation set up by the Ministry of Information and Broadcasting).

Prize: The award prize consists of a golden lotus, a cash prize of ₹10 lakh and a shawl. The award is given to people for their "outstanding contribution to the growth and development of Indian cinema".

History: It was first presented in 1969. The first recipient of the award was actress Devika Rani, "the first lady of Indian cinema."

State GK

Haryana amends rules for conduct of business in Assembly

Haryana has amended several provisions under its **Rules of Procedure and Conduct of Business in the Legislative Assembly of the state.**

- During every sitting of the House, **presence of at least two ministers is a must,** which was not maintained at times during discussion on certain Calling Attention Motions or other Business of the House.
- The **members "shall not tear off documents in the House in protest".** There had been instances where Members occupying opposition benches had torn copies of documents in the House as a mark of protest.
- **A supplementary question shall be held out of order by the Speaker if,** in his opinion- (i) It does not arise from the main Question or its answer; (ii) Instead of seeking information, it gives information; (iii) It seeks confirmation or denial of an opinion; and (iv) It infringes any of the rule regarding question.
- **The Speaker shall allow not more than two supplementary questions to be asked** on any question.

Jail Radio

"Tinka Tinka" foundation has launched 'Jail Radio' project in Haryana jails in collaboration with the State government. Jail Radio is an in-house production run by the inmates. The programmes are broadcast from a studio inside the premises and reach to the inmates through speakers in the barracks. The aim is to bring out the inmates' creativity, give them meaningful engagement.

Need for and significance of the initiative: These inmates would go back to society one day. It is, therefore, important that they are given a meaningful intervention. Many of these repent and regret what happened in the past. They need healing.

Current Affairs Update (Apr 5-11)

National

Biggest floating solar power plant of India

- The biggest floating solar power plant of India is to be set up at **Ramagundam in Telangana**

- The capacity of the solar power plant is **100 MW**. It is expected to be opened in May 2021.

- The solar power plant is being set up at the Ramagundam Thermal Power Plant reservoir.The solar power plant is to be set up in 450 acres of the reservoir.

- **The first floating solar power plant** in India was installed in **Kolkata** in 2014. Currently, the **largest floating solar power plant** of India is located in **Banasura Sagar reservoir** in Wayanad, **Kerala.** The capacity of this plant is 500 KW.

- The **largest solar power plant in the world** is being set up by India on Omkar Eshwar Dam on Narmada River in Madhya Pradesh. The cost of this project is estimated to be Rs 3,000 crores. The project is expected to start its power generation by 2022-23.

Tribunals

Tribunal is a quasi-judicial institution that is set up to deal with problems such as resolving administrative or tax-related disputes. It performs a number of functions like adjudicating disputes, determining rights between contesting parties, making an administrative decision, reviewing an existing administrative decision and so forth.

Constitutional provisions: They were not originally a part of the Constitution.

The **42nd Amendment Act** introduced these provisions in accordance with the recommendations of the Swaran Singh Committee.

The Amendment introduced **Part XIV-A** to the Constitution, which deals with 'Tribunals' and contains two articles:

Article 323A deals with Administrative Tribunals. These are quasi-judicial institutions that resolve disputes related to the recruitment and service conditions of persons engaged in public service.

Article 323B deals with tribunals for other subjects such as Taxation, Industrial and labour, Foreign exchange, import and export, Land reforms, Food, Ceiling on urban property, Elections to Parliament and state legislatures, Rent and tenancy rights.

Why in news? The President of India has promulgated the Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance, 2021. The proposed changes are based on the directions issued by the Supreme Court last year in **the Madras Bar Association case.**

Key changes:

- The ordinance seeks **to dissolve certain existing appellate bodies and transfer their functions to other existing judicial bodies.**
- It seeks to **empower the Central Government** to make rules for qualifications, appointment, term of office, salaries and allowances, resignation, removal and other terms and conditions of service of Members of Tribunals.
- It provides that **the Chairperson and Members of the Tribunals will be appointed by the Central Government** on the recommendation of **a Search-cum-Selection Committee.**
- It also provides **the composition of the Committee,** to be headed by the Chief Justice of India or a Judge of Supreme Court nominated by him.
- **Tenure:** Chairperson of a Tribunal shall hold office for a term of 4 years or till he attains the age of 70 years, whichever is earlier. Other Members of a Tribunal shall hold office for a term of 4 years or till he attains the age of 67 years, whichever is earlier.

Chenab Bridge: World's highest Railway Bridge

Arch closure of the Chenab Bridge has been completed. The Chenab bridge is part of the Udhampur-Srinagar-Baramulla rail link project (USBRL). It is the World's highest Railway Bridge being constructed in Jammu & Kashmir by Indian Railways.

The length of the Chenab bridge will be 1,315 metres. It is 359m above the river bed level. The bridge is 35-metre higher than the Eiffel Tower in Paris.

Chilika was a part of the Bay of Bengal: Study

The **Chilika lake in Odisha, Asia's largest brackish water lake,** was **once part of the Bay of Bengal,** a study by the marine archaeology department of the National Institute of Oceanography (NIO), Goa, has found.

Historical evidences:

- Greek geographer **Claudius Ptolemy** (150 CE) described Palur as an important port of Kalinga and referred to it as **'Paloura' (located near Chilika)**.
- Chinese pilgrim **Xuanzang** (7th century CE) recorded **'Che-li-ta-lo-Ching'** as a flourishing port. This port was located at Chhatargarh on the banks of the Chilika.
- The **Brahmanda Purana** (10th century CE approximately) says the Chilika was an important centre of trade and commerce, with ships sailing to Java, Malaya and Ceylon.

- The famous Sanskrit poet **Kalidas** called the king of Kalinga **'Madhodhipati' or 'Lord of the Ocean'.**

About Chilika:

- Chilika is 64 kilometres long in the north-south direction and 13.5 km wide in the east-west direction.
- Chilika is **Asia's largest and world's second largest lagoon.** It is **the largest wintering ground for migratory birds on the Indian sub-continent** and is home to a number of threatened species of plants and animals.
- In 1981, Chilika Lake was designated **the first Indian wetland of international importance under the Ramsar Convention.**
- Major attraction at Chilika is **Irrawaddy dolphins** which are often spotted off Satpada Island.
- The large **Nalabana Island** (Forest of Reeds) covering about 16 sq km in the lagoon area was declared a bird sanctuary in 1987.

Integrated Health Information Platform

The Union Health Minister Dr Harsh Vardhan recently launched the Integrated Health Information Platform. According to the health ministry, India is the first country to adopt such an advanced surveillance system.

- The Integrated Health Information Platform is to operate under the Integrated Disease Surveillance Programme.

- The Integrated Disease Surveillance Programme operates under the Ministry of Health and Family Welfare.

- The platform aims to strengthen the disease surveillance in the country. This is to be achieved by establishing a decentralised state-based surveillance system for epidemic prone diseases.

- The key features of the platform are real time data reporting through use of mobile applications, geo-tagging of health facilities, etc.

- The platform aims to provide better care and maintain confidential health data.

- The platform will hold information about prevalence of disease in different districts of the country

Integrated Disease Surveillance Programme was launched in 2004. The programme is assisted by the World Bank. The main objective of the programme is to detect and respond to disease outbreaks quickly.

Heatwave

The IMD says heatwave is considered when the maximum temperature of a station touches at least 40 degrees Celsius or more for plains, 37 degrees Celsius or more for coastal regions and at least 30 degrees Celsius or more for hilly regions.

Criteria: Heatwave is declared when the departure from normal temperature is by 4.5 to 6.4 degrees Celsius and a severe heatwave is when the departure from normal is more than 6.4 degrees Celsius.

For plains, based on actuals maximum temperature, IMD considers heatwave when actual maximum temperature is more than 45 degrees Celsius and severe heatwave when it is more than 47 degrees Celsius.

Reasons why India is experiencing more heat waves are:

- Magnified effect of paved and concrete surfaces in urban areas and a lack of tree cover.
- Urban heat island effects can make ambient temperatures feel 3 to 4 degrees more than what they are.
- More heat waves were expected as globally temperatures had risen by an average 0.8 degrees in the past 100 years. Night-time temperatures are rising too.
- Higher daily peak temperatures and longer, more intense heat waves are becomingly increasingly frequent globally due to climate change.
- High intensity of UV rays in medium-high heat wave zone.

SARTHAQ

- **Acronym:** 'Students' and Teachers' Holistic Advancement through Quality Education
- Launched in pursuance of the goals of NEP2020 and to assist States/UTs in this task.
- The programme aims at providing an all-around development for the students at the primary and secondary level.
- It will also establish a safe, secure, inclusive and conducive learning environment for students as well as teachers.
- The major focus is to define activities in such a manner which clearly delineate goals, outcomes and timeframe i.e., it links recommendation of NEP with 297 Tasks along with responsible agencies, timelines and 304 outputs of these tasks."

International

Iran Nuclear Deal

Also known as the Joint Comprehensive Plan of Action (JCPOA). The JCPOA was the result of prolonged negotiations from 2013 and 2015 between **Iran and P5+1** (China, France, Germany, Russia, the United Kingdom, the United States, and the European Union, or the EU).

Under the deal, Tehran agreed to significantly cut its stores of centrifuges, enriched uranium and heavy-water, all key components for nuclear weapons.

Why in news? The U.S. and Iran will soon begin negotiations through intermediaries to try to get both countries back into an accord limiting **Iran's nuclear programme,** nearly three years after President Donald Trump pulled the U.S. out of the deal.

Significance of the deal for India:

- Removing sanctions may revive India's interest in the Chabahar port, Bandar Abbas port, and other plans for regional connectivity.
- This would further help India to neutralize the Chinese presence in Gwadar port, Pakistan.
- Restoration of ties between the US and Iran will help India to procure cheap Iranian oil and aid in energy security.

E9 initiative

The initiative aims to accelerate recovery and advance **the Sustainable Development Goal 4** agenda by driving rapid change in education systems in three of the 2020 Global Education Meeting priorities: (i) support to teachers; (ii) investment in skills; and (iii) narrowing of the digital divide.

Participants: Spearheaded by the UN, the E9 countries include Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan.

LA PEROUSE

It is a multilateral maritime exercise being conducted in the Eastern Indian Ocean Region. Led by French Navy. India is taking part in it.

Science-Tech & Environment

Net-zero

In its bid to reclaim the global climate leadership, the US is widely expected to commit itself to a net-zero emission target for 2050 at the upcoming **virtual Climate Leaders' Summit** convened by US President Joe Biden.

Other countries committed to net- zero:

Several other countries, including the UK and France, have already enacted laws promising to achieve a net-zero emission scenario by the middle of the century. Even China has promised to go net-zero by 2060. The European Union is working a similar Europe-wide law, while many other countries including Canada, South Korea, Japan and Germany have expressed their intention to commit themselves to a net-zero future.

What is net-zero?

Net-zero, which is also referred to as carbon-neutrality, does not mean that a country would bring down its emissions to zero. Rather, **net-zero is a state in which a country's emissions are compensated by absorption and removal of greenhouse gases from the atmosphere.**

Absorption of the emissions can be increased by creating more carbon sinks such as forests, while removal of gases from the atmosphere requires futuristic technologies such as carbon capture and storage.

Net-zero and the Paris agreement:

The net-zero goal does not figure in the 2015 Paris Agreement, the new global architecture to fight climate change. The Paris Agreement only requires every signatory to take the best climate action it can.

Countries need to set five- or ten-year climate targets for themselves, and demonstrably show they have achieved them. The other requirement is that targets for every subsequent time-frame should be more ambitious than the previous one.

What about India? What are its objections?

India, **the world's third biggest emitter of greenhouse gases,** after the US and China, is the only major player holding out. India is the only one opposing this target because it is likely to be the most impacted by it.

Challenges unique to India:

1. Over the next two to three decades, India's emissions are likely to grow at the fastest pace in the world, as it presses for higher growth to pull hundreds of millions of people out of poverty.

2. No amount of afforestation or reforestation would be able to compensate for the increased emissions.

3. Most of the carbon removal technologies right now are either unreliable or very expensive.

Robo Plant

The scientists from Singapore have developed a technology to interact with plants. The technology has been named as "Robo Plant".

- The technology helps to control the plants using smart phone applications.

- In future, this technology can be further used to enable farmers to detect diseases in plants. The plants can tell farmers that they are hit by diseases through this technology.

- The Singapore scientists achieved in building the technology by linking plants to electrodes. These electrodes were capable of monitoring weak electrical pulses that are naturally emitted by green plants.

- Plants also have the capability to sense and respond to the environment. They react to chemicals, light, gravity, moisture, infections, oxygen, infection, temperature, parasite infestation, sound, physical disruption and touch.

Draft amendment to Forest Conservation Act

The Union Ministry of Environment, Forest and Climate Change has proposed several amendments to **the Forest (Conservation) Act, 1980 (FCA).**

Draft amendments:

- They propose to grant exemptions to railways, roads, tree plantations, oil exploration, wildlife tourism and 'strategic' projects in forests.
- They seek to empower state governments to lease forest land to private individuals and corporations.
- Amendments seek to complete the process of forest identification in a time-bound manner.
- They also propose to enable the creation of 'no-go' areas, where specific projects would not be allowed.

About the Forest (Conservation) Act, 1980:

- The FCA is the principal legislation that regulates deforestation in the country.

- It prohibits the felling of forests for any "non-forestry" use without prior clearance by the central government.
- The clearance process includes seeking consent from local forest rights-holders and from wildlife authorities.
- The Centre is empowered to reject such requests or allow it with legally binding conditions.

Plant-Insect Gene Transfer reported for the first time

The Chinese scientists have recently identified the transfer of genes from plants to insects. Usually transfer of genes happen among the same family. For instance, the genes of a human parent get transferred to his or her child. However, this is not the case in the recent discovery. Here the insect called whiteflies has incorporated a portion of DNA from plants into their genome.

- The Chinese scientists have found that the insect whiteflies use the stolen gene to degrade common toxins in plants. Plants use these toxins to defend themselves against insects. The incorporation of the plant gene in the whiteflies allow the insects to feed on the plants safely.

- The incorporated gene found was BtPMaT1. The whiteflies use this gene to neutralise the toxic compounds produced by the plants against them.

- According to the scientists, the whiteflies have incorporated the gene from the plants more than 35 million years ago. This is one of the main reasons why whiteflies still prevail as the major threat to agricultural crops. This is because they have built a strong defence mechanism against the plants using this gene incorporation.

Xenobots

The scientists have used the stem cells of frogs to create a new living robot. These robots have been named Xenobots. The Xenobots were created by microengineering amphibian eggs with RNA.

Nomenclature: They have been named after the Xenopus laevis frog that supplied its cells to create the robot. Xenopus laevis is an African frog.

Application: These robots are to be used to detect diseases and deliver drugs to specific areas of the body.

Netra

To safeguard its space assets from space debris, **Isro had set up a dedicated Space Situational Awareness (SSA) Control Centre named "Netra"** in Bengaluru. The real amount of space debris is said to be between 500,000 and one million pieces as current sensor technology cannot detect smaller objects. They all travel at speeds of up to 17,500 mph (28,162 kmph) fast enough for a relatively small piece of orbital debris to damage a satellite or a spacecraft.

Netra's key objective is to monitor, track and protect the national space assets and function as a hub of all SSA activities.

Only the US, Russia and Europe have similar facilities in place to track space objects and share collision warnings.

India H2 Alliance

The Global energy and industrial majors have joined together to form a new coalition called the India H2 Alliance. The India H2 Alliance, IH2A mainly focuses on commercialising hydrogen technologies. It will work towards boosting the hydrogen economy and supply chain in India.

Blue Hydrogen: Blue Hydrogen is produced from the splitting of natural gas into carbon dioxide and hydrogen. This is achieved by Steam Methane Reforming or Auto thermal Reforming.

Green Hydrogen: Green Hydrogen is made from non-fossil sources.

Main objectives of IH2A:

- To build hydrogen economy and supply chain in India

- To help develop blue and green hydrogen production and storage

- To build hydrogen-use industrial clusters

- To increase hydrogen-powered fuel cells-based transport

World Health Day

7th April is observed as World Health Day. The day is observed to mark **the formation of the World Health Organisation (WHO) on this day in 1948.**

Theme: "Building a fairer, healthier world for everyone".

African swine fever

An outbreak of suspected African swine fever (ASF) has killed 276 domestic pigs in Lunglei district of **Mizoram**.

African Swine Fever (ASF): ASF is a highly contagious and fatal animal disease that infects domestic and wild pigs, typically resulting in an acute form of hemorrhagic fever.It was first detected in Africa in the 1920s.

The mortality is close to 100 per cent, and since the fever has no cure, the only way to stop it spreading is by culling the animals. ASF is not a threat to human beings since it only spreads from animals to other animals.

NanoSniffer

- The Union Education Minister recently launched the world's first Microsensor based Explosive Trace Detector called the "NanoSniffer".

- The NanoSniffer was developed by an IIT Bombay incubated startup called NanoSniff Technologies. It is marketed by the IIT Delhi incubated startup Kritikal Solutions.

- The NanoSniffer can detect explosives in less than ten seconds.

- It can detect all class of military, homemade and conventional explosives.

- It uses MEMS system. MEMS is Micro-Electromechanical System.

Three banded Rosefinch

A team of scientists from the Bombay Natural History Society recorded a new species of bird. It has been identified as the three banded Rosefinch. The new bird species was identified while exploring the high-altitude coniferous forests of Arunachal Pradesh.

The Three Branded Rosefinch belongs to the finch species of birds. Finch birds have world wide distribution except for Australia and Polar Regions.

Since 2016, 104 new species of birds have been added to the checklist of India. This has been possible mainly because of intensive surveys especially in the least studied landscapes such as eastern Himalayas.

Economics

Harmonized System of Nomenclature Code

It has been made mandatory for a GST taxpayer having a turnover of more than Rs 5 crore in the preceding financial year, to furnish 6 digits HSN Code (Harmonized System of Nomenclature Code). This comes into effect from April 1.

- **The HS code** is **a six-digit identification code.** Of the six digits, the first two denote the HS Chapter, the next two give the HS heading, and the last two give the HS subheading.
- Developed by **the World Customs Organization (WCO).**
- Called **the "universal economic language" for goods.**
- It is **a multipurpose international product nomenclature.**
- The system currently **comprises of around 5,000 commodity groups.**

Need for and significance: Over 200 countries use the system as a basis for their customs tariffs, gathering international trade statistics, making trade policies, and for monitoring goods. The system helps in harmonising of customs and trade procedures, thus reducing costs in international trade.

Stand Up India Scheme

- Stand Up India Scheme was launched on 5 April 2016 to promote entrepreneurship at the grass-root level of economic empowerment and job creation.
- This scheme seeks to leverage the institutional credit structure to reach out to the underserved sector of people such as SCs, STs and Women Entrepreneurs.
- The objective of this scheme is to facilitate bank loans between Rs.10 lakh and Rs.1 crore to at least one SC or ST borrower and at least one woman borrower per bank branch for setting up a Greenfield enterprise.
- The offices of SIDBI and NABARD shall be designated Stand-Up Connect Centres (SUCC).
- Banks have sanctioned more than ₹25,000 crore to over 1.14 lakh accounts.
- Women-led enterprises have dominated the sanctions so far under the scheme, which has now been extended till 2025.

RXIL

RXIL is **Receivables Exchange of India**. Recently RXIL has become the first TReDS platform to cross monthly throughput of Rs 1000 crores.

RXIL was incorporated in 2016. It is a joint venture between Small Industries Development Bank of India (SIDBI) and National Stock Exchange of India Limited. It operates TReDS.

It was the first entity to receive approval from RBI to launch the first TreDS Exchange of India.

TReDS is an electronic platform that facilitates financing of MSMEs through multiple financiers.The main three participants in the TreDS are MSMEs (sellers), financiers and Corporate entities (buyers). According to RBI, only MSMEs can participate as sellers in TReDS.

State GK

Darbar Move

A tradition of a century and a half is set to be broken in Jammu and Kashmir, with only "sensitive records" being taken from Jammu to Srinagar this summer, unlike in previous years when the entire administration and records would be shifted during **"Darbar Move".**

What is Darbar Move?

It is a century-old practice in which the government functioned for six months each in **the two capitals of the erstwhile State, Srinagar and Jammu.** The practice was reportedly started in the late 19th century by Ranbir Singh, the Maharaja of Jammu and Kashmir.The Durbar Move was **started to take the administration to the doorstep of the people of Kashmir which is closer to Ladakh.**

Criticisms: The 'Darbar Move' results in wastage of tremendous amount of time, efforts and energy on inefficient and unnecessary activity. It is taxing for security forces too. It nurtures inefficiency and leads to lack of governance. It also causes delay in justice dispensation as government records are not available to the pleaders in one region for six months at a time.

What has the High Court said?

Last year, the Jammu & Kashmir High Court observed that there was **no legal justification or constitutional basis for the Darbar Move tradition.**

Pointing out that the practice has resulted in wastage of tremendous amount of time, efforts and energy on inefficient and unnecessary activity, a Division Bench observed that valuable resources of the state (financial and physical) cannot be diverted to completely non-essential usage when the Union Territory in unable to provide even basic essentials to its people.

The court recommended that in case the practice was rationalised, the resources and time saved could be utilised towards the welfare and development of the UT; the money saved could also be used to address Covid-related issues like food shortage, unemployment and healthcare.

Current Affairs Update (Apr 12-18)

National

India, Russia committed to S-400 deal

Russian Ambassador to India Nikolai Kudashev recently confirmed that both India and Russia are "committed" to completing their contract for the S-400 missile system, due to be delivered to India at the end of the year. He said both countries opposed **U.S. sanctions on the issue.**

S-400t: The **S-400 Triumf** is a mobile, surface-to-air missile system (SAM) designed by Russia.It is the most dangerous operationally deployed modern long-range SAM (MLR SAM) in the world, considered much ahead of the US-developed Terminal High Altitude Area Defense system (THAAD).

Issue: The S-400 deal could attract sanctions under US' CAATSA law. The US has already sanctioned China and Turkey over similar purchases.

What is CAATSA? Countering America's Adversaries through Sanctions Act (CAATSA)'s core objective is to counter Iran, Russia and North Korea through punitive measures. Enacted in 2017. Includes sanctions against countries that engage in significant transactions with Russia's defence and intelligence sectors.

Likely sanctions:

- Prohibition on loans to the sanctioned person.
- Prohibition of Export-Import bank assistance for exports to sanctioned persons.
- Prohibition on procurement by United States Government to procure goods or services from the sanctioned person.
- Denial of visas to persons closely associated with the sanctioned person.

People are free to choose religion: SC

In a recent case, the Supreme Court has said **people are free to choose their religion.** A petition was filed in the court claiming there is mass religious conversion happening "by hook or by crook" across the country. The petition alleged that the court should direct the Centre and the States to control black magic, superstition and religious conversion being done through threats, intimidation or bribes.

Observations made by the Court:

1. People have a right under the Constitution to profess, practise and propagate religion (Article 25).

2. Every person is the final judge of his/her choice of religion or who their life partner should be. Courts cannot sit in judgment of a person's choice of religion or life partner.

3. Religious faith is a part of the fundamental right to privacy.

4. The Constitution Bench judgment has already upheld inviolability of the right to privacy, equating it with the rights to life, of dignity and liberty.

Raisina Dialogue

The Raisina Dialogue was recently organised by the Ministry of External Affairs and Observer Research Foundation. The dialogue was held under the theme: **viral World: Outbreaks, Outliers and Out of Control.**

Raisina Dialogue: It is an annual Geo-political event. It is named after Raisina Hill where the seat of Government of India is located. It is a conference on geoeconomics and Geopolitics. It was structured on the lines of Shangri-La-Dialogue. It was held for the first time in 2016.

Objectives:

- To explore future opportunities for Asian integration.

- To explore advancement in integration of Asia with the world

- It also asserts the crucial role played by India in the Indian Ocean Region.

- It also focuses on how India can build a stable, regional and world order.

- It addresses the most challenging issued faced by the global community.

Mission Aahaar Kranti

The Union Minister of Health and Family Welfare Dr Harsh Vardhan recently launched "Mission Aahaar Kranti". The mission aims to spread the message of the importance of nutritionally balanced diet.

India produces two times the amount of calories it consumes. Still, several people are malnourished in the country.The motto of the mission is "Good Diet-Good Cognition".

Umngot

It is a river in Meghalaya. It is considered to be India's clearest river. The river attracts many tourists to Dawki bordering Bangladesh.

The river is the natural boundary between Ri Pnar (of Jaintia Hills) with Hima Khyrim (of Khasi Hills).

Why in News? There is a stiff resistance from at least 12 villages in Meghalaya on a 210 MW hydroelectric project on Umngot.

New Chief Election Commissioner of India

Election Commissioner **Sushil Chandra** recently took over as the new Chief Election Commissioner of India.

Article 324 of the Constitution provides the provisions of Chief Election Commissioner. Article 324 provides powers to the Chief Election Commissioner to control and direct elections to the state legislature, parliament and to the offices of President and Vice President of the country.

The Chief Election Commissioner and other Election commissioners shall be appointed by the President of India.It also says that, the Chief Election Commissioner shall be removed from office only on the like grounds of the Supreme Court Judge.

Tenure: The Chief Election Commissioner and other election commissioners hold office for 6 years or till they attain the age of 65 years, whichever is earlier. They can resign at any time by addressing their resignation to the president.

MANAS app launched

MANAS App is a well-being App that stands for **Mental Health and Normalcy Augmentation System.** It is endorsed as a national program by the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC).

MANAS is a comprehensive, scalable, and national digital wellbeing platform and an app developed to augment the mental well-being of Indian citizens.

MANAS App integrates the health and wellness efforts of various government ministries, scientifically validated indigenous tools with gamified interfaces developed/researched by various national bodies and research institution
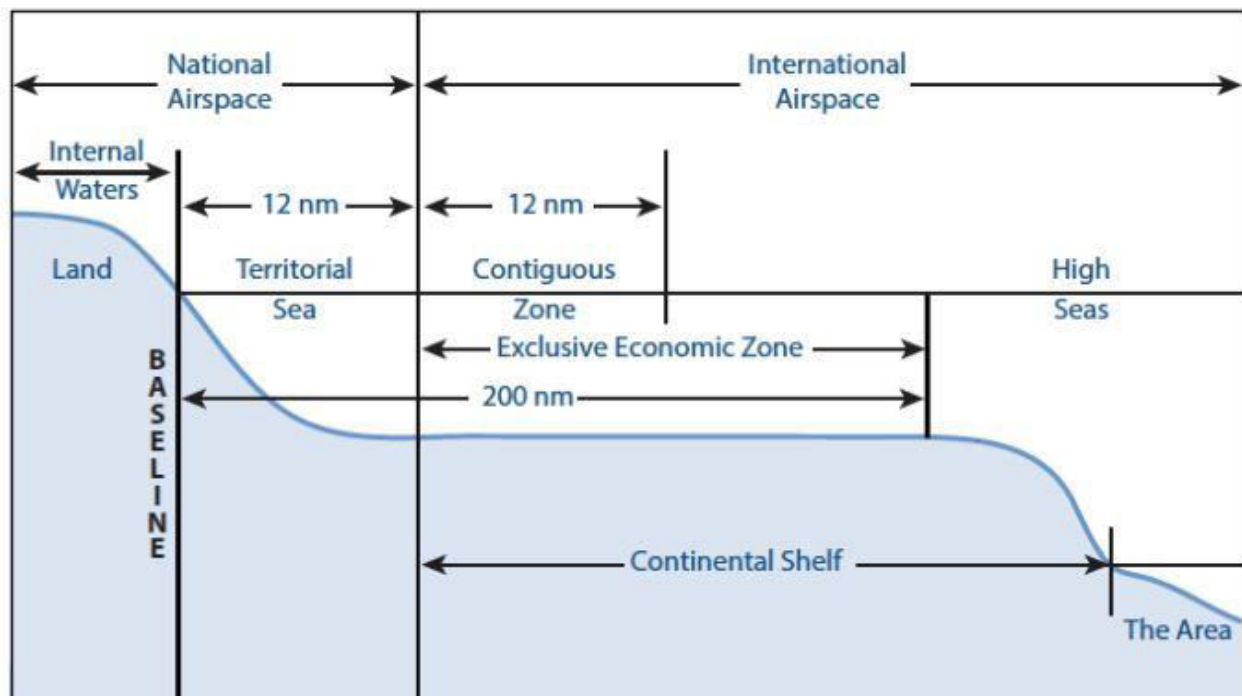
e-visa

- An **e-visa is provided in five categories —** tourist, business, conference, medical, and medical attendant.
- Under the arrangement, a foreigner can apply online four days prior to travel. After the details are verified, an electronic travel authorisation (ETA) is generated, which has to be presented at the immigration checkpost on arrival.
- Entry through e-visas is **allowed only at 28 designated international airports and five major seaports in India.**
- The Union Home Ministry has restored the electronic visa (e-visa) facility for foreigners from 156 countries

International

Freedom of Navigation Operation (FONOP)

The US Navy has publicly declared it conducted **"freedom of navigation operations"** in India's **Exclusive Economic Zone (EEZ)** near Lakshadweep earlier this week, without deliberately seeking New Delhi's prior consent. However, India has protested this decision, rejecting the U.S.'s claim that its domestic maritime law was in violation of international law- (the United Nations Convention on the Law of the Sea (UNCLOS)).

Background: India's domestic laws hold any country carrying out military maneuvers in its EEZ must provide prior notification. While a country has full sovereignty over its territorial waters, which end at 12 nautical miles from the coast, it only has special rights in exploration and use of marine resources in its EEZ, which stretch to 200 nautical miles from the baseline.

What's the issue?

The US said, India's requirement of prior consent is inconsistent with international laws and the "freedom of navigation operations (FONOPs)". The **US — which has not ratified the UNCLOS unlike India, China and many other countries —** does regularly conduct FONOPs in the contentious South China Sea to challenge China's aggressive territorial claims as well as in other areas including the Indian Ocean Region.

What's the concern now?

The "tone and tenor of the aggressive public declaration" of FONOPs in India's EEZ, at a time when the US is seeking India's closer cooperation through the Quad and other mechanisms to foster "credible deterrence" against China in the Indo-Pacific, raised the hackles of the Indian security establishment.

What is FONOP?

Freedom of Navigation Operations involves passages conducted by the US Navy through waters claimed by coastal nations as their exclusive territory.

According to the US Department of Defense (DoD), the FON Program has existed for 40 years, and "continuously reaffirmed the United States' policy of exercising and asserting its navigation and overflight rights and freedoms around the world".

These "assertions communicate that the United States does not acquiesce to the excessive maritime claims of other nations, and thus prevents those claims from becoming accepted in international law".

Radioactive water from the Fukushima nuclear power plant

The Japanese Government recently approved a plan to release more than 1 million tonnes of treated radioactive water from the Fukushima nuclear power plant. In 2011, there occurred a nuclear disaster in the plant due an earthquake and tsunami. It was the most severe Nuclear accident that was classified as Level 7 on the International Nuclear Event Scale.

Issue: The release of the treated radioactive water could take several years to begin and will take decades to complete. Also, Japan is facing opposition from the anti-nuclear activists and fishing communities for the release of the water into the sea.

The Operator TEPCO (Tokyo Electric Power Company Holdings) has planned to filter the contaminated water leaving only tritium. This is because, it is highly complicated and difficult to remove tritium from water. However, the filtered water is to be diluted till tritium levels fall below regulatory limits before dumping into the ocean. Tritium is less harmful as compared to other radioactive wastes. It does not emit enough energy to penetrate human skin. However, it can cause cancer when ingested.

Withdrawal of US Forces from Afghanistan

US President Biden recently announced that America is to withdraw all its troops from Afghanistan. The new deadline announced by US coincides with the twentieth anniversary of 09/11 attacks.

In February 2020, US and its NATO allies signed a deal to withdraw all troops in fourteen months if Taliban upheld all its promises.

Impact of the withdrawal

- The peace processes in Afghanistan will hasten in its pace. Taliban had earlier announced that it will not attend any peace summit with Afghanistan till all the foreign forces leave the country. The summit is due to be held in Turkey in April 2021.

- According to some observers, the withdrawal of US troops might compromise the political, social and humanitarian gains made since 2001.

- The illicit drug trafficking in the region might increase. Afghanistan is a part of Golden Crescent.

Impact of withdrawal on India

The arrival of Taliban on the centre stage will put economic interests of India in the country of Afghanistan at stake. It will also put India under high security threat as prominence of Pakistan in Afghanistan will increase.

Doomsday Glacier
Also called the Thwaites Glacier, it is located in Antarctica.The melting of this glacier has long been a cause of concern because of its high potential of speeding up the global sea level rise happening due to climate change.

It is 120 km wide at its broadest. Because of its size (1.9 lakh square km), it contains enough water to raise the world sea level by more than half a metre.

First Female Astronaut of UAE
Noura al Matroushi has been named as the first Female Astronaut of UAE. However, the first Muslim woman to enter space was Anousheh Raissyan. She was also the first Iranian woman to enter space. She is an Iranian American telecommunications entrepreneur.

World Homeopathy day
Every year, the World Homeopathy day is celebrated on **April 10**. The day is celebrated to commemorate the birth anniversary of the founder of Homeopathy **Dr Samuel Hahnemann**. In India, the Homeopathy Day was celebrated under the following theme: **Homeopathy: Roadmap for Integrative Medicine**

UN Food Systems Summit 2021
- India Holds National Dialogue on UN Food Systems Summit 2021.
- The United Nations Secretary General has called for the first ever UN Food Systems Summit to be held in September 2021.
- It seeks to strategize the actions for positive change in Agri-food systems in the World to realize the vision of the 2030 Agenda for Sustainable Development.

- The Summit will focus on levers and pathways to shape food systems nationally and globally to accelerate progress in the SDGs.

Science-Tech & Environment

Dolphin boom in Odisha's Chilika Lake

Odisha has released the final data on the dolphin census.The population of dolphins in Chilika, India's largest brackish water lake, and along the Odisha coast has doubled this year compared with last year.

Three species were recorded during the census, with 544 **Irrawaddy, bottle-nose and humpback dolphins** sighted this year, compared with 233 last year.

The rise in the Irrawaddy dolphin population in Chilika can be attributed to the eviction of illegal fish enclosures.

Irrawaddy dolphins: Found in coastal areas in South and Southeast Asia, and in three rivers: the Irrawaddy (Myanmar), the Mahakam (Indonesian Borneo) and the Mekong (China). They are 'Endangered' as per the IUCN Red List.

Brucellosis

Brucellosis is a zoonotic infection caused by the bacteria of the genus Brucella.The bacterial infection can spread from animals to humans, most commonly through the consumption of raw or unpasteurised dairy products.

Indian Rhino Vision 2020 (IRV 2020)

Two adult **one-horned rhinos** were recently translocated from **Pobitora Wildlife Sanctuary** to **Manas National Park**, under the aegis of **the Indian Rhino Vision 2020 (IRV 2020).**

With this last leg of wild-to-wild translocation under IRV2020, a total of 22 rhinos have been translocated from Pobitora Wildlife Sanctuary (12) and Kaziranga National Park (10) to Manas National Park.

About the Indian Rhino Vision 2020 (IRV 2020): Launched in 2005. IRV 2020 is an initiative led by the Forest Department, Government of Assam, in partnership with WWF India, International Rhino Foundation, and several other organizations.

The goal of IRV2020 was to increase the rhino population in Assam to 3,000 by establishing populations in new areas.

Rhinos are now found in four Protected Areas in Assam: Pabitora Wildlife Reserve, Rajiv Gandhi Orang National Park, Kaziranga National Park, and Manas National Park.

Deadly algae kill 4,000 tonnes of Salmon in Chile

Deadly algae have killed more than 4,000 tonnes of Salmon in Chile. The algal bloom in the water reduced the amount of oxygen suffocating the salmon fishes. The presence of urea and ammonia in the salmon farms led to the algal bloom.

Chile is the second largest producer of Salmon in the world after Norway. Chile produces more than 26% of world Salmon.

How does Algal Bloom kill fishes?

During day, the algae produce oxygen through photosynthesis. While at night, in the absence of sunlight, it stops photosynthesis and starts respiring just like other organisms in the water system. Respiration is taking in Oxygen and releasing carbon dioxide. Thus, during night the dissolved oxygen drops too low suffocating the fish in the water system.

Also, as the algal bloom increases, it forms thick blanket over the water surface. This prevents sunlight from penetrating the water. Thus, the second source of oxygen where the oxygen dissolves in water at the surface contacts is blocked.

Economics

e-SANTA

- It is an electronic marketplace providing a platform to connect aqua farmers and the buyers.
- Launched by Union Commerce Ministry.
- It will enable the farmers to get a better price and the exporters to directly purchase quality products from the farmers enhancing traceability, a key factor in international trade.
- The term e-SANTA was coined for the web portal, meaning Electronic Solution for Augmenting NaCSA farmers' Trade in Aquaculture.
- e-SANTA will 'RAISE' the lives & income of farmers by: Reducing Risk, Awareness of Products & Markets, Increase in Income, Shielding Against Wrong Practice and Ease of Processes.

Current Affairs Update (Apr 19-25)

National

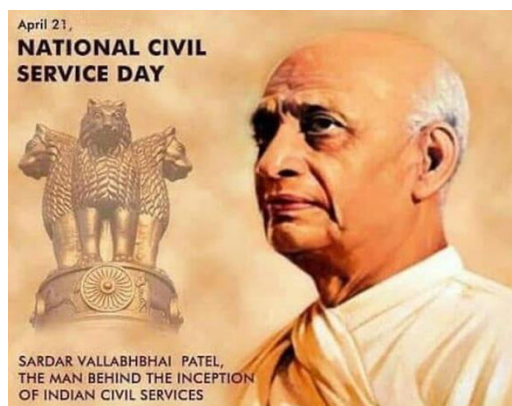### India elected to three bodies of the UN ECOSOC

India was recently elected to the three bodies of the United Nations. They were the **Commission on Crime Prevention and Criminal Justice, Executive Board of the UN Entity for Gender Equality and Empowerment of Women and the Executive Board of World Food Programme**. All these three bodies operate under United Nations Economic and Social Council.

India was elected to all these three bodies by acclamation. **Acclamation** is honouring someone. Electing a member country through acclamation does not use a ballot. However, other member countries were elected through secret ballot to these bodies.

India's term to these bodies begins on January 1, 2022.

National Civil Services Day

- Every year India celebrates National Civil Services Day on **April 21**.

- On this day in 1947, the then Home Minister Shri Sardar Vallabhai Patel addressed the first batch of Administrative Services Officers. Sardar Vallabhai Patel was the first Home Minister of India.

- Patel addressed the probationers at the Metcalf House, New Delhi

- Sardar Vallabhai Patel often referred the Indian Administrative Service as "Steel Frame of India"

National Panchayati Raj Day

Every year, the National Panchayati Raj Day is celebrated on **April 24**. The first National Panchayati Raj day was declared on April 24, 2010. It is celebrated on April 24 as the Panchayati Raj System of India came into effect on **April 24, 1993**. It was introduced through the **73rd Constitutional amendment**. The establishment of Panchayati Raj System in the country was recommended by **Balwant Rai Committee**.

Transport 4 All (T4All) Challenge

- Launched by the Housing & Urban Affairs Ministry in collaboration with Institute for Transportation and Development Policy (ITDP).
- The Challenge aims to bring together cities, citizen groups, and start-ups to develop solutions that improve public transport to better serve the needs of all citizens.
- All the Smart Cities Mission cities, capitals of states and union territories (UTs), and all cities with a population of over 5 lakhs are eligible for the Challenge.

International Day for Monuments and Sites

Every year, the United Nations marks **April 18** as the International Day for Monuments and Sites.In many countries the day is also celebrated as **World Heritage Day.**

- **The theme for this year** is "Complex Pasts: Diverse Futures".
- Globally, the day is promoted by **the International Council on Monuments and Sites (ICOMOS).**

Heritage sites in India:

- India is home to 38 UNESCO World Heritage Sites, out of the 1121 such spots identified around the world.
- Of these, 30 are 'cultural' and 7 are 'Natural'. One is classified as 'Mixed', the Khangchendzonga National Park.
- In 2019, 'Jaipur City' became the 38th addition to the India list under Culture.
- So far, only China, Italy, Spain, Germany, and France have more locations on the list than India.

G C Murmu

G C Murmu has been chosen as the External Auditor of Organisation for Prohibition of Chemical Weapons (OPCW). G C Mumru is currently serving as the CAG of India.

OPCW: The Organisation for Prohibition of Chemical Weapons has 193 member states. It is an international organisation that works to achieve a chemical weapon free world. OPCW is based in Hague, Netherlands.

International

Iran says it has started enriching uranium to 60%

Iran has started **enriching its uranium supply to 60 percent purity — the closest the country has ever come to the level needed for a weapon —** in response to the sabotage of an Iranian nuclear site last weekend linked to Israel.

Uranium contains a rare radioactive isotope, called **U-235,** that can be used to power nuclear reactors at low enrichment levels and to fuel nuclear bombs at much higher levels. What makes the 60 percent enrichment level particularly threatening is that the tricky process of enrichment becomes far easier and requires fewer centrifuges as it moves into the higher purities. In other words, getting to 90 percent purity is much easier starting from 20 percent, and easier still starting from 60 percent.

Armenian Genocide

US President Joe Biden is preparing to formally **acknowledge the Armenian Genocide.** Every year, Armenian Genocide Remembrance Day will be marked on **April 24.**

While **Turkey disagrees,** the consensus among historians is that during the Armenian Genocide, **between 1915 to 1922, in the First World War,** thousands of Armenians perished due to killings, starvation and disease, when they were deported by **Ottoman Turks from eastern Anatolia.** The **International Association of Genocide** Scholars estimates that more than 1 million Armenians may have died

World Press Freedom Index, 2021

- The Reporters Without Borders, a not-for-profit body recently published the World Press Freedom Index, 2021.
- **Countries assessed:** It ranked 180 countries.
- **Top performers:** Norway topped the index followed by Finland and Denmark.
- **Bottom three:** Eritrea received the last rank in the index. China ranked 177th out of 180 countries. North Korea was at rank 179 and Turkmenistan was at rank 178.
- **India's performance:** India ranked 142 in the index. India was at the same position in 2020 as well. The report classified India under ''BAD" category along with Brazil, Russia and Mexico.

USCIRF report

The **U.S. Commission on International Religious Freedom (USCIRF),** an independent bi-partisan commission, has released its 2021 annual report.

Highlights of the report: The report designated 14 countries as **"countries of particular concern (CPCs)"** as "their governments are engaged in or tolerate "systematic, ongoing, and egregious violations of religious freedom." This **includes India.**

Global Energy Transition Index

- The **World Economic Forum** recently released the Global Energy Transition Index.
- The Global Energy Transition Index benchmarks **115 countries** based in their performance across three dimensions namely Environmental sustainability, economic development and growth and energy security.
- **Sweden** ranked first in the report followed by **Norway and Denmark**.
- India ranked **87th** in the index.

Table Mountain National Park

It is a **flat-topped mountain** located in Cape Town of South Africa. It is a significant tourist attraction. It is included in the **UNESCO World Heritage site**.

The most popular feature of the Table Mountains is **the level plateau** that runs approximately three kilometres. The plateau is flanked by **Devil's Peak** in the east and **Lion's head** in the west.

The mountains are also known for the **orographic clouds**. These mountains are very frequently covered by orographic clouds unlike any other mountains in the world. This is because of the south easterly winds.

Why in news? Recently, a fire caught in the park and is burning it rapidly

Cholistan desert

- Located in Pakistan.The place was in news because of recent shooting of two Great Indian Bustards (GIBs) here.
- The GIB, which is the State bird of Rajasthan, is considered India's most critically endangered bird.
- The GIB's population of less than 100 in Rajasthan accounts for 95% of its total world population.

India and Germany sign agreement on 'Cities combating plastic entering the marine environment'

- India and Germany have signed an agreement on Technical Cooperation titled 'Cities Combating Plastic Entering the Marine Environment' at a virtual ceremony.
- This project is envisaged under the contours of the Joint Declaration of Intent regarding cooperation in the field of **'Prevention of Marine Litter'** signed between Republic of India and Federal Republic of Germany in 2019.
- The project, aimed at enhancing practices to prevent plastic entering the marine environment, will be undertaken at the national level (at MoHUA), select states and UTs (Uttar Pradesh, Kerala and Andaman & Nicobar Islands) and in the cities of Kanpur, Kochi and Port Blair for a period of three and a half years.
- The project's outcomes are completely in line with the objectives of Swachh Bharat Mission-Urban focusing on sustainable solid waste management.

Science-Tech & Environment

Ingenuity-the first successful flight of a powered aircraft on another planet

NASA's miniature robot helicopter Ingenuity performed a successful take-off and landing on Mars early on April 19, achieving the first powered, controlled flight by an aircraft over the surface of another planet.

Ingenuity was developed as a technology demonstration, separate from Perseverance's primary mission to search for traces of ancient microorganisms and collect samples of Martian rock for eventual return to Earth for further analysis.

Type: Solar-powered helicopter

Nomenclature: The skill of thinking, performing, or using things in new ways (high school student Vaneeza Rupani of Alabama originally submitted the name for the Mars 2020 rover, which was ultimately called Perseverance)

Time duration: 40-second flight with precision at its intended altitude of 10 feet (3 meters)
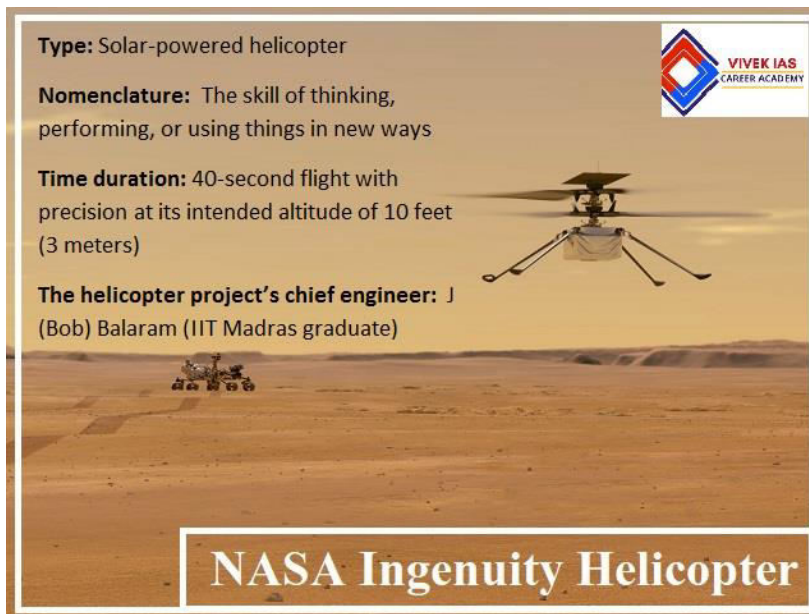
The helicopter project's chief engineer: J (Bob) Balaram (IIT Madras graduate)

Challenge faced: While Mars possesses much less gravity to overcome than Earth, its atmosphere is just 1% as dense, making it especially difficult to generate aerodynamic lift.

Significance:

- NASA likened the achievement to the Wright Brothers' first controlled flight of their motor-driven airplane near Kitty Hawk, North Carolina, in December 1903 - a take-off and landing that covered just 120 feet (37 meters) in 12 seconds.
- Experimental test flights will help inform decisions about small helicopters for future Mars missions — where they can perform a support role as robotic scouts, surveying terrain from above, or as full standalone science craft carrying instrument payloads.
- The success could pave the way for new modes of exploration on Mars and other destinations in the solar system, such as Venus and Saturn's moon Titan.

Type: Solar-powered helicopter

Nomenclature: The skill of thinking, performing, or using things in new ways

Time duration: 40-second flight with precision at its intended altitude of 10 feet (3 meters)

The helicopter project's chief engineer: J (Bob) Balaram (IIT Madras graduate)

NASA Ingenuity Helicopter

MOXIE

Acronym: Mars Oxygen In-Situ Resource Utilization Experiment

The Perseverance rover of Mars 2020 Mission of NASA recently converted carbon dioxide into oxygen. This is the first time this has been achieved in another planet. This was achieved by MOXIE, an instrument placed in the front side of the rover. MOXIE is also called "Mechanical Tree". This is because; it uses electricity and chemistry to split carbon molecules into carbon and oxygen. Like a tree on Earth, MOXIE inhales carbon dioxide and exhales oxygen.

Why is producing oxygen on the Red Planet so important?

Oxygen supply on Mars is essential for crewed missions to Mars– not just for astronauts to breathe but for rockets to use as fuel while coming back to Earth.

State of the Global Climate 2020" report

- **Released by:** The World Meteorological Organisation (publishing the report since 1993)

- 2011-2020 was the warmest decade in record. 2020 is one of the three warmest years on record.

- The Cyclone Amphan is the costliest tropical cyclone on record in the North Indian Ocean. The Cyclone made a landfall in May 2020 near India-Bangladesh border. The economic losses in India due to the cyclone is approximately 14 billion USD.

- The increase in global average temperature as of 2020 was 1.2 degree Celsius as compared to the pre-industrial levels.

- Only 59 countries that represent 54% of global emissions have framed their net-zero targets. Of these only six countries have legislations on net-zero emissions.

Visible Infrared Imaging Radiometer Suite (VIIRS)

VIIRS is a weather monitoring equipment placed in satellites orbiting the earth. It is basically a sensor, that collects imagery and radiometric measurements of atmosphere, land, cryosphere and oceans. The data is collected in visible and infrared bands of electromagnetic spectrum.

Objective: The VIIRS is mainly used to monitor and investigate changes and properties in surface vegetation.

In January 2019, the Ministry of Environment, Forest and Climate Change launched FAST. FAST will monitor forest fires in India using real time information from VIIRS. FAST is Fire Alert System.

Why in news? The Global Forest Watch recently reported that India recorded 82,170 forest fire alerts between April 1, 2021 and April 14, 2021. This is nearly double the number reported during the same period in 2020. The alert was based on the data from the Visible Infrared Imaging Radiometer Suite (VIIRS).

Khanjar exercise

India and Kyrgyztan recently held a joint Special Force Military Exercise called the "Khanjar". The exercise was held at Bishek, the capital of Kyrgyzstan.

Russia to launch its own space station in 2025

Russia's space agency is planning to launch its own **orbital station in 2025**. Russia is considering withdrawing from **the International Space Station programme** to go it alone.

International Space Station: Launched in **1998** and **involving Russia, the United States, Canada, Japan, and the European Space Agency,** the ISS is one of the most ambitious international collaborations in human history. ISS is a modular space station (habitable artificial satellite) in low Earth orbit.

Human cells grown in monkey embryos

Researchers from US have **for the first time grown human cells in monkey embryos.** By integrating human cells into the embryos of macaque monkeys, researchers have created what is called **a chimeric tool.**

Chimeras are **organisms that are made up of the cells of two distinct species,** in this case humans and monkeys.

Objectives: Researchers believe that this ability to grow cells of two different species together offers scientists a powerful **tool for research and medicine,** advancing current understanding about early human development, disease onset and progression and ageing. Further, research of this kind could also **help in drug evaluation and address the critical need for organ transplantation.**
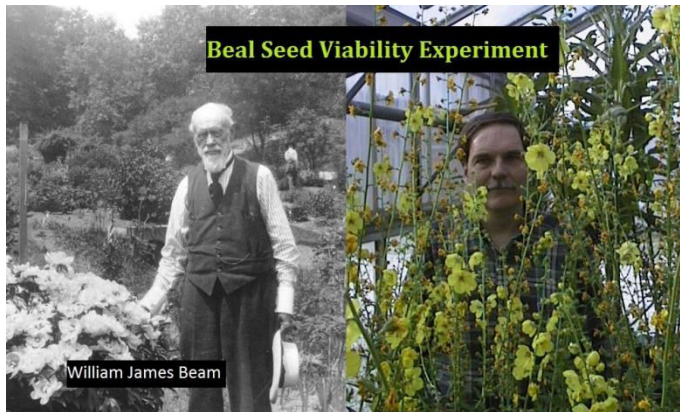
The ethical concerns:

- Generally, different species don't cross-breed and if they do, their offspring don't survive for long and are prone to infertility. But, Some rare hybrid animals exist naturally and were probably the result of unintentional cross breeding between animals of different species.
- While further research into chimeras might lead to progress, which could mean that they could be used as a source of organs for humans, these chimeras would still be a mix of human and non-human cells, a thought that makes many uncomfortable.
- The research raises "the philosophical and ethical issue of moral status: how should we treat other life forms?".
- Opponents argue that chimera research has the potential to worsen injustice against animals and also point out the fairness in using part-human animals to meet human needs.

Beal Seed Viability Experiment

- The Beal Seed Viability Experiment was begun by William James Beam. He was an American Botanist who worked at the Michigan State University.
- In 1879, Beal began one of the longest running experiments in botany. The experiment aims to study how long a weed can stay dormant in agricultural fields.

- Beal filled twenty bottles with a mixture of seed and sand. Each bottle consisted of fifty seeds from twenty-one different species. These bottles were buried with their necks pointing down to exclude water.

- The main objective of the experiment was to unearth the bottles every five years. And then plant these seeds to observe how many of the seeds sprouted.

- Later, the botanists who continued the experiment extended it to opening the bottle once in ten years. And now it has been extended to once in twenty years.

- This experiment is still running in the soil of Michigan State University. The study is due to end in 2100.

- So far, the experiment has run for 142 years.

- In 2002, the Beal Seed Viability Experiment founded that some weed seeds are capable of surviving even hundred years if placed in an uncorked bottle with sand buried into soil.

Beal Seed Viability Experiment

William James Beam

The Blue Nature Alliance

The Blue Nature Alliance is a global partnership of five core partners and few other Non-Profit Organisations. The core partners are Conservation International, The Global Environment Facility, the Pew Charitable Trusts, Minderoo Foundation and Rob and Melani Walton Foundation.

The Blue Alliance was launched on April 20, 2021.

Objective: The alliance aims to protect 5% of the world ocean in five years.

Target Areas of the Alliance

The alliance aims to target seven ocean locations. They are as follows:

- Antarctica

- Seychelles

- Canada

- Palau

- Western Indian Ocean

- Fiji

- Tristan da Cunha, an island in the South Atlantic Ocean

World Earth Day

Every year, the World Earth Day is celebrated on April 22. The first World Earth Day was celebrated in 1970. The World Earth Day celebrations are organised by Earth Society Foundation.

History: In 1969 at UNESCO Conference in San Francisco, the Peace Activist John McConnell proposed to celebrate World Earth Day to honour the earth. It was first proposed to be celebrated on March 21, 1970, which is the first day of spring in the northern hemisphere.

Earth Day was first observed in 1970, when 20 million took to the streets to protest against environmental degradation. The event was triggered by the 1969 Santa Barbara oil spill, as well as other issues such as smog and polluted rivers.

On Earth Day 2016, the landmark Paris Agreement was signed by the United States, China, and some 120 other countries.

Theme for 2021: Restore our Earth. Its focus is on natural processes, emerging green technologies and innovative thinking that can restore the world's ecosystems.

Virtual Climate leaders Summit: This year, US President Joe Biden has invited leaders of forty top economies of the world including Indian Prime Minister Narendra Modi and Chinese President Xi Jing Ping to the Leader's Summit on Climate. The virtual meet is to be held on World Earth Day.

Outcome of Summit: During the summit, around 101 Nobel Laureates made a call to sign up a "**Fossil Fuel Non-Proliferation Treaty**". They submitted a letter that called to phase out fossil fuels. During the Summit, the USA President pledged to halve the US emissions by the end of the decade.

Economics

U.S. Treasury keeps India on currency watch list

The U.S. Treasury has released **the report on Macroeconomic and Foreign Exchange Policies of Major Trading Partners of the United States.** The April 2021 edition of the semi-annual report is the first from the Biden administration. The report is submitted to the U.S. Congress and reviews currency practices of the U.S.'s 20 biggest trading partners.

Three criteria are used to review partners:

1. A significant (at least $20 billion) bilateral trade surplus.

2. A material current account surplus.

3. Persistent one-sided intervention in forex markets.

Currency manipulation: The US Treasury department defines currency manipulation as when countries deliberately influence the exchange rate between their currency and the US dollar to gain "unfair competitive advantage in international trade".

Highlights of the latest report:

- India is one of the 11 countries on **the 'Monitoring List'** with regard to their currency practices.
- India was on the list in the December 2020 report as well.
- India met two of the three criteria — the trade surplus criterion and the "persistent, one-sided intervention" criterion.
- The other 10 countries on the list with India are China, Japan, Korea, Germany, Ireland, Italy, Malaysia, Singapore, Thailand, and Mexico.

RBI sets up committee to review working of ARCs

The RBI has set up a committee **headed by Sudarshan Sen** to undertake a comprehensive review of the working of **asset reconstruction companies (ARCs)** in the financial sector ecosystem and recommend suitable measures for enabling them to meet the growing requirements.

Asset Reconstruction Company (ARC): It is a specialized financial institution that buys the Non-Performing Assets (NPAs) from banks and financial institutions so that they can clean up their balance sheets. This helps banks to concentrate in normal banking activities. Banks rather than going after the defaulters by wasting their time and effort, can sell the bad assets to the ARCs at a mutually agreed value. The asset reconstruction companies or ARCs are **registered under the RBI.**

Legal Basis: The **Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002** provides the legal basis for the setting up of ARCs in India.

Startup India Seed Fund Scheme

- The Startup India Seed Fund Scheme (SISFS) has been launched.
- The **SISFS** will **S**ecure seed funding, **I**nspire innovation, **S**upport transformative ideas, **F**acilitate implementation, and **S**tart startup revolution.
- The Fund aims to provide financial assistance to startups for proof of concept, prototype development, product trials, market entry, and commercialization.
- Nodal Department: Department for Promotion of Industry and Internal Trade.

Current Affairs Update (Apr 26-30)

National

Supply Chain Resilience Initiative (SCRI)

In a move **to counter China's dominance of supply chain in the Indo-Pacific region,** trade ministers of **India, Japan and Australia** have formally launched **the Supply Chain Resilience Initiative (SCRI).**

The SCRI aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the region. Initially, SCRI will focus on sharing best practices on supply chain resilience and holding investment promotion events and buyer-seller matching events to provide opportunities for stakeholders to explore the possibility of diversification of their supply chains.

Possible policy measures under the initiative may include:

(i) Supporting the enhanced utilization of digital technology.

(ii) Supporting trade and investment diversification.

Project 'Pyrasol'

The foundation stone of the integrated Solar Dryer and Pyrolysis pilot plant was recently laid at Chennai. The pilot is part of the Indo-German project 'Pyrasol', launched **to transform urban organic waste into biochar and energy in smart cities.** It was awarded to CSIR-CLRI by the Indo-German Science & Technology Centre.

The project focuses on managing and organising collection, treatment, and disposal systems of urban wastes in Indian Smart Cities as well as in other urban centres with an integrated and interactive approach.

The project will ultimately lead to technology development for the joint processing of **Fibrous Organic Waste (FOW) and Sewage Sludge (SS) of** Indian smart cities into hygienic and highly valuable biochar associated with energy recovery, carbon sequestration and environmental improvement.

Assam earthquake

An earthquake of magnitude 6.4 on the Richter scale hit Assam recently.

Epicentre: The preliminary analysis shows that the events are located near to **Kopili Fault** closer to **Himalayan Frontal Thrust (HFT).** The area is seismically very active falling in the highest **Seismic**

Hazard zone V associated with collisional tectonics where **Indian plate sub-ducts beneath the Eurasian Plate.**

Himalayan Frontal Thrust (HFT): HFT, also known as the Main Frontal Thrust (MFT), is a geological fault along the boundary of the Indian and Eurasian tectonic plates.

Varuna, 2021
The Indian and French Navies recently conducted the Varuna Naval Exercise in the Arabian Sea. The Varuna, 2021 is a part of the Clemenceau 2021.

On February 21, 2021, the French Carrier Strike Group set sail for a long operational deployment called "Clemenceau 21". With this mission, the French Navy deployed its military presence in areas of strategic interests namely Mediterranean Sea, Persian Gulf and the Indian Ocean.

As a part of Clemenceau 21, France held the GASWEX with its allies. The other countries that participated in the GASWEX exercise were France, Japan, Belgium and US forces. The exercise was held in the Arabian Sea and in the Gulf of Oman.

Ayushman Bharat Diwas
Every year, the Ayushman Bharat Diwas is celebrated on April 30 in India. The Ayushman Bharat Diwas is celebrated to achieve twin missions. They are to promote health and wellness to the poor and also to provide insurance benefits to them.

Ayushman Bharat Scheme:

- It is the largest health cover in the world. The Scheme was launched by Prime Minister Narendra Modi in April 2018.

- The beneficiaries are chosen from the Socio-Economic Census Database. The beneficiaries of Pradhan Mantri Jan Arogya Yojana is from bottom 40% of Indian Population.

- It aims to provide five lakh rupees of health cover per family per year.

- The scheme also covers fifteen days of pre-hospitalisation and fifteen days of post-hospitalisation. This includes the expenses of medicines and tests.

- The scheme subsumed the Senior Citizen Health Insurance Scheme and Rashtriya Swasthya Bima Yojana.

International

"Trends in world Military Expenditure" Report

The Stockholm International Peace Research Institute recently released its "Trends in world Military Expenditure" report. According to the report, the top military spenders in the world are the United States, China and India. These three countries alone contributed 62% global military expenditure.

The US spent 3.7% of its GDP on military. India and China spent 2.9% and 1.7% of their GDP respectively.

Russia expels European Diplomats

Russia recently expelled diplomats of Latvia, Slovakia, Estonia, Lithuania, Romania, Czech diplomats. It was retaliation from Russia after the countries expelled the Russian diplomats.

The Czech Republic ordered Russian staff to leave the embassy. The order was passed based on the accusations that Russian Intelligence Officers were behind 2014 explosion. In 2014, two explosions occurred in a Czech Ammunition depot. Ammunition Depots are military storage units.

Baltic Countries: Latvia, Estonia and Lithuania are called Baltic countries. The region gets its name from the Baltic sea that surrounds the region. The countries declared independence from Soviet Union in 1991.

IA 2030

The IA 2030 is Immunisation Agenda 2030. It was launched by World Health Organisation, GAVI and the UNICEF. It has been titled as the "A Global Strategy to leave No One Behind". It aims to maximise lifesaving impact of vaccines.

It aims to promote "Vaccination throughout life", that is, from infancy to adolescent and till old age. According to WHO, if completely implemented, the IA 2030 will avert fifty million deaths. Of this 75% of them will be in low-income and in lower-middle-income countries.

What are the targets of IA 2030?

- It aims to achieve 90% coverage of essential vaccines that are administered to infants, children and adolescents.

- Also, the IA 2030 agenda will aim to halve the number of children missing vaccines by 2030.

- Also, it will complete 500 national introductions of new vaccines such as COVID-19 vaccines, Human Papiloma Virus vaccine called the HPV and also rotavirus.

Chloe Zhao

The Chinese born film maker Chloe Zhao has become the first Asian woman to win the Best director at the Academy Awards. She won the award for her film Nomadland

Nomadland won three major awards namely Best Director, Best Actress for Frances McDormand and Best Picture. The film is about a woman who leaves town after her husband dies. She also becomes houseless as sole industry closes down. She then lives in a van and travels around the US.

Michael Collins

Michael Collins was an American Astronaut. He was the pilot of the Apollo 11 command module. On July 20, 1969, Michael Collins stayed behind when Buzz Aldrin and Neil Armstrong became the first humans to walk on the moon. He recently died at the age of 90.

Michael is often addressed as the forgotten third astronaut in the Apollo mission. He stayed alone in the command module for twenty-one hours till his colleagues returned. The Autobiography written by Michael was "Carrying the Fire"

Science-Tech & Environment

SpaceX Crew 2

The SpaceX Crew 2 is the second crewed flight of Crew Dragon spacecraft. It is the third overall crewed orbital flight. Under Crew 2 Mission, NASA and SpaceX together transported four astronauts to the International Space Station. It is the first commercial crew mission to fly international partners.

Gambia eliminates Trachoma

Gambia recently became the second African country to eliminate Trachoma. Trachoma is one of the leading causes of blindness. Ghana became the first African country to eliminate Trachoma in 2018.

Trachoma

Causative agent: Chlamydia trachomatis (Bacteria)

Part affected: Eyelids. The infection causes a roughening of the inner surface of the eyelids. This roughening can lead to pain in the eyes, breakdown of the outer surface or cornea of the eyes, and eventual blindness.

Category: Neglected Tropical Diseases

Treatment: Azithromycin antibiotic & Surgery to correct position of eyelashes

Elimination strategy: The elimination strategy is summarized by the acronym **"SAFE"**, which means Surgery for advanced disease, Antibiotics to clear C. trachomatis infection, Facial cleanliness and Environmental improvement to reduce transmission.

Trachoma in India: India was the first country to start an anti-trachoma national plan in 1963 which was merged with the National Programme for Control of Blindness. India became free from active Trachoma in 2017. According to the National Trachoma Survey Report, the overall prevalence of Trachoma was 0.7% in the country. This is much below the elimination criteria defined by the World Health Organisation.

The World Health Organisation (WHO) defines elimination of active trachoma as less than 5 per cent prevalence in the population under study.

Liquid oxygen

- It is the liquid form of molecular oxygen.
- Liquid oxygen has a pale blue color and is strongly paramagnetic: it can be suspended between the poles of a powerful horseshoe magnet.
- Because of its cryogenic nature, liquid oxygen can cause the materials it touches to become extremely brittle.
- Liquid oxygen is also a very powerful oxidizing agent: organic materials will burn rapidly and energetically in liquid oxygen.

Applications: In commerce, liquid oxygen is classified as an industrial gas and is widely used for industrial and medical purposes. Liquid oxygen is the most common cryogenic liquid oxidizer propellant for spacecraft rocket applications, usually in combination with liquid hydrogen, kerosene or methane.

Pressure swing adsorption (PSA)

- It is a technology used to separate some gas species from a mixture of gases under pressure according to the species' molecular characteristics and affinity for an adsorbent material.
- It operates at near-ambient temperatures and differs significantly from cryogenic distillation techniques of gas separation.
- Specific adsorbent materials (e.g., zeolites, activated carbon, molecular sieves, etc.) are used as a trap, preferentially adsorbing the target gas species at high pressure.
- The process then swings to low pressure to desorb the adsorbed material.

Oxygen Concentrator

An oxygen concentrator concentrates oxygen from the atmosphere.

Working of Oxygen Concentrator

- The atmospheric air has 78% of nitrogen and 21% of oxygen. The Oxygen Concentrator accumulates air, filters through a sieve sending the nitrogen back in to the air and collects oxygen alone.

- The oxygen in the oxygen concentrator is compressed and dispensed through a cannula.The oxygen is 90% to 95% pure.

- A pressure valve in the concentrators help to regulate the supply of oxygen from 1 to 10 litres per minute.

How is oxygen from Oxygen Concentrator different from Medical Oxygen?

- The Oxygen from the concentrators is not as pure as the Liquid Medical Oxygen. However, it is pure enough for mild and moderate COVID-19 patients. It is suitable for patients who require oxygen saturation levels of 85% or above. The Oxygen Concentrators are not advisable for ICU patients.

- The Oxygen Concentrators will provide only five to ten litres per minute. The critical patients will need 40 to 50 litres of oxygen per minute.

- The Oxygen Concentrators are portable. On the other hand, the Liquid Medical Oxygen needs to be stored and transported in cryogenic tankers.

- The Oxygen Concentrators only require a power source to draw in ambient air. On the other hand, the Liquid Medial Oxygen needs refilling.

- The Oxygen Concentrators are largely one-time investment. They require Rs 40,000 to Rs 90,000. The cylinders costs Rs 8,000 to Rs 20,000.

- The concentrators require minimal operating cost that includes electricity and routine maintenance. On the other hand, cylinders involve refilling costs and transportation costs.

Zhurong

Nomenclature: China has named its first Mars rover as Zhurong after a traditional fire god. The name signifies igniting the flame of Planetary Explorations of China.

Zhurong is on board Tianwen-1 Space probe.It arrived at the Mars orbit in February 2021 and is due to land on the planet in May 2021.

Significance: With Zhurong, China will become the third country after Soviet Union and USA to achieve soft landing on Mars. Also, it will become the second country put a rover on Mars after the US.

Maui Dolphins

Distribution: The Maui Dolphins are found only in the West Coast of New Zealand and no where else in the world. They are one of the smallest dolphin's subspecies globally.

IUCN Red list status: Critically Endangered

Biggest threat: Toxoplasmosis disease. It is caused by a parasite found in cat faeces.

The parasite survives in weathering condition and is virtually indestructible. As it enters into water, it is ingested by fish. It then reaches the dolphins when they feed on fish. The parasite causes organ failure and it attacks the brain.

Single Crystal Blade Technology

- The Defence Research and Development Organisation recently developed the Single Crystal Blade Technology. The organisation has delivered sixty of such blades to the Hindustan Aeronautics Limited. A very few countries in the world possess this technology. They are UK, USA, Russia and France.
- The helicopters need powerful and compact aero engines to operate in extreme conditions. In order to achieve this, Single Crystal Blades are essential.
- The Single Crystal blades are made of nickel based super alloys. These alloys are capable of withstanding high temperatures.
- Normally the "Grain Boundary" technology is used in making blades. Here the metal forms grains while solidifying. The blades created under this technology has longer life and are more corrosion resistant.

Python 5

- It is the **fifth generation** Python missile.

- It is an **air to air missile** built by the **Israeli** weapon manufacturer Rafael Advanced Defence Systems.

- The Israeli Government began manufacturing missiles in the name of "Shafir". Later as it started exporting missiles it selected a western name "Python" or "Derby".

- The Python-5 is currently the most capable Air to air missile in the inventory of Israel.

- It is beyond visual range missile. The Beyond Visual Range missiles are those missiles that are capable of engaging at ranges beyond 37 km. The Python 5 is capable to scan for the target area for the hostile aircraft and then locks on for terminal chase.

- It was first used in 2006 Lebanon war. It destroyed two Iran made UAVs.

- Speed of the missile is Mach 4.It weighs 11 kilograms

- The DRDO announced that the Python 5 Air to Air Missile has been successfully added to the Light Combat Aircraft Tejas.

Aditya-L1 Support Cell (AL1SC)

- A Community Service Centre has been set up on board India's first dedicated Solar Space Mission. The centre is called ALISC. ALISC is Aditya-L1 Support Cell. It is to be set up at the ARIES at Haldwani, Uttarakhand.
- It is a joint effort of ISRO and ARIES. ISRO is Indian Space Research Organisation and ARIES is Arybhata Research Institute for Observational Sciences.
- The Centre will accommodate guest observers and will help them by providing data from the mission to analyse the findings.

Economics

Compulsory Licensing

Russia is planning to fly special planes with a wide range of COVID-related assistance including oxygen generators and concentrators as well as drugs needed for the treatment of the coronavirus that is ravaging many parts of India. However, Russia may have to hold off sending the drug Remdesivir owing to U.S. patent violations.

The issue: Exports of Remdesivir have run into trouble with U.S. licensing laws invoked by Remdesivir developer, California-based **Gilead Sciences Inc.**

Remdesivir, that was cleared for COVID-19 treatment by the US Food and Drug Administration (FDA) in October 2020, is being made in Russia after the government in Moscow decided to defy the international patent held by Gilead, and issued an ordinance allowing Russian company Pharmasyntez to manufacture the drug under **a "compulsory licence".**

Compulsory Licensing: Compulsory License is a licence issued/authorised by the government that allows the company or an individual seeking other's intellectual property to use it (making, using and selling a patented product or employing a patented process) without having to seek the consent of the owner/the right holder, by paying a predetermined fee for the license.

Indian Patents Act 1970 and the Agreement on Trade-Related Aspects of Intellectual Property Rights deal with compulsory licensing.

The application for a compulsory license can be made any time after 3 years from the date of sealing of a patent.