

My Notes....

NATIONAL

CRITICAL INFORMATION INFRASTRUCTURE DECLARED

The **Union Ministry of Electronics and IT (MeitY)** has declared **IT resources** of ICICI Bank, HDFC Bank and UPI managing entity NPCI as '**critical information infrastructure**' (CCI).

How are CIIs protected in India?

- Created in January 2014, the **National Critical Information Infrastructure Protection Centre (NCIIPC)** is the nodal agency for taking all measures to protect the nation's critical information infrastructure.
- It is mandated to guard CIIs from "**unauthorized access**, modification, use, disclosure, disruption, incapacitation or distraction".
- NCIIPC will monitor and forecast national-level threats** to CII for policy guidance, expertise sharing and situational awareness for early warning or alerts.
- The basic responsibility for protecting the CII system shall lie with the agency running that **CII**.

What is critical information infrastructure?

- The **Information Technology Act of 2000** defines "**Critical Information Infrastructure**" as a "**computer resource**, the **incapacitation or destruction** of which shall have **debilitating impact on national security**, economy, public health or safety".
- The government, under the Act, has the power to declare **any data, database, IT network** or communications infrastructure as CII to protect that digital asset.
- Any person who secures access or attempts to secure access to a protected system in **violation of the law** can be punished with a jail term of up to 10 years.

INTER-STATE COUNCIL

Tamil Nadu Chief Minister **M K Stalin** wrote to Prime Minister on 16 June 2022, asking that **at least three meetings** of the **Inter-State Council** should be held every year to "**strengthen the spirit of cooperative federalism**". He said this was because there is no "**effective and interactive communication**" between the states and the Centre on **issues of common interest**.

What is the Inter-State Council?

- It is a mechanism that was constituted "**to support Centre-State and Inter-State coordination and cooperation in India**".
- The **Inter-State Council** was established under **Article 263 of the Constitution**, which states that the President may constitute such a body if a need is felt for it.
- The Council is basically meant to **serve as a forum for discussions** among various governments.
- In 1988**, the **Sarkaria Commission** suggested the Council should exist as a **permanent body**, and **in 1990 it came into existence** through a Presidential Order.
- The main functions of the Council are **inquiring into and advising on disputes** between states, investigating and discussing subjects in which two states or states and the Union have a common interest, and making recommendations for the **better coordination of policy and action**.

6. The **Prime Minister is the chairman of the Council**, whose members include the **Chief Ministers of all states and UTs** with legislative assemblies, and **Administrators of other UTs**.
7. **Six Ministers of Cabinet rank** in the Centre's Council of Ministers, nominated by the Prime Minister, are also its members.

PROTEST FOR ECO-SENSITIVE ZONES

Farmers in Kerala continue to protest across several high ranges of the state **against the Supreme Court's recent order** to establish **1-km Eco-Sensitive Zones around all protected areas**, wildlife sanctuaries and national parks. The Union government said that it will hold discussions with the Kerala government and file an affidavit in the **Supreme Court on the matter**.

Why protest

1. On 3 June 2022, a three-judge bench of the Supreme Court heard a PIL which sought to **protect forest lands in the Nilgiris in Tamil Nadu**, but was later expanded to cover the entire country.
2. In its judgment, the court while **referring to the 2011 guidelines** as "**reasonable**", as reported by Live Law, directed all states to have a **mandatory 1-km ESZ** from the demarcated boundaries of every protected forest land, national park and wildlife sanctuary.
3. It also stated that **no new permanent structure or mining** will be permitted within the ESZ.
4. If the **existing ESZ goes beyond 1-km buffer zone** or if any statutory instrument prescribes a higher limit, then such extended boundary shall prevail, the court.

What are Eco-Sensitive Zones?

1. As per the **National Wildlife Action Plan (2002-2016)**, issued by the Union Ministry of Environment, Forest and Climate Change, **land within 10 km of the boundaries of national parks and wildlife sanctuaries** is to be notified as **eco-fragile zones** or **Eco-Sensitive Zones (ESZ)**.
2. While the **10-km rule** is implemented as a general principle, the extent of its application can vary.
3. **Areas beyond 10-km can also be notified by the Union government as ESZs**, if they hold larger ecologically important "**sensitive corridors**."

SC'S 'KIHOTO HOLLOHAN' JUDGMENT

As the **political battle in Maharashtra** moves to the **Supreme Court (SC)**, the role and powers of the Deputy Speaker are in focus. On 27 June 2022, the top court gave the 16 rebel Shiv Sena MLAs until 12 July 2022 to respond to the **disqualification notice issued by the Deputy Speaker**. In the context of the crisis, references have been made to the **landmark judgment** in '**Kihoto Hollohan vs Zachillhu And Others**' (1992), in which the Supreme Court upheld the **sweeping discretion** available to the Speaker in deciding cases of disqualification of MLAs.

What is the 'Kihoto Hollohan' case?

1. The **law covering the disqualification of lawmakers** and the **powers of the Speaker** in deciding such matters became part of the **statute book in 1985** when the Tenth Schedule to the Constitution, commonly known as the '**anti-defection law**', was adopted.

2. A **constitutional challenge to the Tenth Schedule** was mounted, which was settled by the apex court in '**Kihoto Hollohan**'.
3. The principal question before the Supreme Court in the case was whether the powerful role given to the Speaker **violated the doctrine of basic structure** — the judicial principle that certain basic features of the Constitution cannot be altered by amendments by Parliament.
4. The Supreme Court laid down the **doctrine of basic principle** in its landmark judgment in '**Kesavananda Bharati vs State Of Kerala**' (1973).

What did the Supreme Court rule in 'Kihoto Hollohan'?

1. The petitioners in '**Kihoto Hollohan**' argued whether it was fair that the Speaker should have such broad powers, given that there is always a reasonable likelihood of bias.
2. The majority judgment authored by **Justices M N Venkatachaliah** and **K Jayachandra Reddy** answered this question in the affirmative: "The Speakers/Chairmen hold a pivotal position in the scheme of Parliamentary democracy and are guardians of the rights and privileges of the House.
3. They are expected to and do take far reaching decisions in the Parliamentary democracy. Vestiture of power to adjudicate questions under the **Tenth Schedule** in them should not be considered exceptionable."
4. They added that the Schedule's provisions were "**salutory and intended to strengthen the fabric of Indian Parliamentary democracy** by curbing unprincipled and unethical political defections."

MANY PEOPLE KILLED BY LIGHTNING

Seventeen people have been **killed by lightning** in various parts of Bihar, Six deaths have been reported from Bhagalpur district, while three people were killed in Vaishali, and two each in Banka and Khagaria. Other deaths happened in Madhepura, Saharsa, Munger and Katihar.

What is lightning?

1. Scientifically, **lightning is a rapid and massive discharge of electricity** in the atmosphere some of which is **directed towards earth**. The discharges are generated in **giant moisture-bearing clouds** that are **10-12 km tall**.
2. The base of these clouds typically lies **within 1-2 km of the Earth's surface**, while the top is 12-13 km away. **Temperatures in the top** of these clouds are in the range of **-35° to -45°C**.
3. As **water vapour moves upward in the cloud**, the falling temperature causes it to **condense**. As they move to **temperatures below 0°C**, the water droplets change into small ice crystals.
4. They **continue to move up**, gathering mass until they are so heavy that they start to fall to Earth. This leads to a system in which, simultaneously, **smaller ice crystals** are moving up and **bigger crystals are coming down**.
5. **Collisions follow and trigger the release of electrons**, a process that is very similar to the **generation of sparks of electricity**. As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.
6. This process results in a situation in which the **top layer of the cloud gets positively charged**, while the **middle layer is negatively charged**.
7. The electrical potential difference between the two layers is huge, of the order of a **billion to 10 billion volts**. In very little time, a massive current, of the order of **100,000 to a million amperes**, starts to flow between the layers.
8. While the **Earth is a good conductor of electricity**, it is **electrically neutral**. However, in comparison to the middle layer of the cloud, it becomes **positively charged**.

- As a result, about 15%-20% of the current gets directed towards the Earth as well. It is this **flow of current** that results in damage to life and property on Earth.
- Direct lightning strikes are rare** but even **indirect strikes are fatal** given the immense amount of charge involved.

ONORC PROGRAMME IMPLEMENTED ACROSS INDIA

Assam has finally operationalised the **ration card portability service** and with this, the **Centre's 'One Nation, One Ration Card' programme** is implemented across the country, the food ministry said on 21 June 2022. Under the **ONORC (One Nation, One Ration Card)**, beneficiaries covered under the **National Food Security Act, 2013 (NFSA)** can get their quota of subsidised foodgrains from any **electronic point of sale device (ePoS)-enabled fair price shops** of their choice by using their existing ration cards with biometric authentication.

What

- Assam has become the 36th state/UT** to implement ONORC, the ministry said. With this, the ONORC programme has been successfully implemented in all states and Union Territories, **making food security portable** throughout the country, it said.
- The implementation of **ONORC was initiated in August 2019**.
- Since 2019**, about 71 crore portable transactions have taken place delivering foodgrains equivalent to about Rs 40,000 crore in food subsidy through portability.
- At present, a monthly average of about **3 crore portable transactions** are being recorded, delivering the subsidised NFSA and free **PMGKAY foodgrains** with anywhere flexibility to the beneficiaries, it said.
- During the COVID-19 period from **April 2020** till date, the ministry said about 64 crore portable transactions have been recorded, delivering foodgrains equivalent to about Rs 36,000 crore in food subsidy through portability.
- Out of these 64 crore portable transactions, 27.8 crore were recorded under the **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)**, announced in March 2020 for distribution of additional free foodgrains to NFSA beneficiaries to mitigate the Covid-induced hardships.
- The government has also rolled out the '**MERA RATION**' **mobile application** to take maximum advantage of the ONORC plan.
- The mobile app is providing a host of useful **real-time information** to the beneficiaries and is available in 13 languages. So far, the app has been downloaded more than 20 lakh times from Google Play Store.

INTERNATIONAL

G7'S INFRASTRUCTURE INVESTMENT PLAN LAUNCHED

The **G7 countries**, who are meeting during the ongoing Leaders' Summit in Germany, have officially launched the **Partnership for Global Infrastructure and Investment (PGII)**, a **joint initiative to fund infrastructure projects in developing countries**. The project, launched on 27 June 2022, is being seen as the bloc's counter to China's '**Belt and Road Initiative**'.

What is G7's PGII?

- The **infrastructure plan was first announced in June 2021** during last year's G7 Summit in the UK.
- Back then, US President Joe Biden had called it the **Build Back Better World (B3W) framework**. However, it did not register much progress and details regarding the plan's time period or funding source were unclear. This time around, the initiative was officially launched as PGII.

3. Essentially, **G7 countries** — the US, Canada, Italy, the UK, France, Germany, and Japan — and the EU have noted the **infrastructure projects** being undertaken and funded by China at a global level and decided to present their alternative mechanism for it.
4. The stated purpose of both the **PGII and the BRI** is to help secure funding for countries to build critical infrastructure such as **roads, ports, bridges, communication setups**, etc. to enhance global trade and cooperation.
5. However, the **G7 say their initiative** is meant to be transparent, focused on **building climate change-resilient infrastructure**, and help in achieving objectives of gender equality and health infrastructure development.
6. The US president also mentioned that the fund does not mean “**charity or aid**”, but loans, and will be beneficial for both the countries lending and receiving them.

‘PARTNERS IN THE BLUE PACIFIC’ LAUNCHED

Amid **China’s aggressive push to increase its Pacific sphere of influence**, the US and its allies — **Australia, New Zealand, Japan and the United Kingdom** — have launched a new initiative called ‘**Partners in the Blue Pacific**’ for “effective and efficient cooperation” with the region’s small island nations.

What is Partners in the Blue Pacific (PBP) initiative?

1. The **PBP** is a five-nation “**informal mechanism**” to support **Pacific islands** and to boost diplomatic, economic ties in the region.
2. Announced on 24 June 2022, it speaks of enhancing “**prosperity, resilience, and security**” in the Pacific through closer cooperation.
3. It simply means that through the PBP, these countries — together and individually — will direct more resources here to counter China’s aggressive outreach.
4. The initiative members have also declared that they will “**elevate Pacific regionalism**”, and forge stronger ties with the Pacific Islands Forum.
5. The areas where PBP aims to enhance cooperation include “**climate crisis, connectivity and transportation, maritime security and protection, health, prosperity, and education**”.

2022 RESILIENT DEMOCRACIES STATEMENT

India, along with G7 countries and four invited countries, on 27 June 2022 signed the ‘**2022 Resilient Democracies Statement**’ in which they committed to “**guarding the freedom, independence and diversity of civil society actors**” and “protecting the **freedom of expression and opinion** online and offline”.

These principles and are resolved to:

1. **Protecting the freedom of expression and opinion online and offline** and ensuring a free and independent media landscape through our work with relevant international initiatives.
2. Ensuring an **open, free, global, interoperable, reliable and secure internet**
3. Increasing the **cyber resilience of digital infrastructure**, including by improving and sharing awareness of cyber threats and **expanding cyber response cooperation**

4. **Countering hybrid threats**, in particular information manipulation and interference, including disinformation
5. **Cooperating to counter information manipulation** promotes accurate information, and advocate for our shared democratic values worldwide.
6. Promoting affordable access to diverse sources of **reliable and trustworthy information** and data, online and offline, including through a multi-stakeholder approach, and by strengthening digital skills and digital literacy
7. Enhancing transparency about the actions of online platforms **to combat violent, extremist and inciting content online**

INDIA, ASEAN MEETING

India and the ASEAN on 16 June 2022 agreed to work towards a **comprehensive strategic partnership** that is meaningful, substantive and mutually-beneficial by further enhancing their strategic ties. This was stated by External Affairs Minister S Jaishankar and his Singaporean counterpart Vivian Balakrishnan at the **India-ASEAN foreign ministerial meeting** being hosted by New Delhi to mark the **30th anniversary of its relations** with the 10-nation grouping.

What

1. **Jaishankar and Balakrishnan** are the **co-chairs** of the two-day meeting that began on 16 June 2022.
2. It is understood that the meeting discussed the situation in the **South China Sea**, a resource-rich region that has been witnessing increasing Chinese muscle-flexing.
3. The meeting reaffirmed commitment to **multilateralism founded** on the principles of international laws including the **Charter of the United Nations**, the **1982 UN Convention on the Law of the Sea (UNCLOS)** and other **relevant UN treaties and conventions**.
4. The foreign ministers agreed to work towards maintaining an **open and inclusive regional cooperation framework**, support ASEAN centrality in the evolving rules-based regional architecture and uphold multilateralism in jointly responding to regional and global challenges.
5. The meeting agreed to further strengthen and deepen the **ASEAN-India strategic partnership** across the whole spectrum of political, security, economic, socio-cultural and development cooperation by utilising existing **ASEAN-led mechanisms**.
6. Both sides agreed to explore potential cooperation between the **ASEAN Outlook on Indo-Pacific (AOIP)** and **India's Indo-Pacific Ocean's Initiative (IPOI)** in areas such as maritime security, maritime connectivity and the blue economy.

Flashback

1. The ASEAN-India dialogue relations started with the establishment of **sectoral partnership in 1992** which graduated to full dialogue partnership in December 1995 and summit level partnership in 2002.
2. The ties were elevated to **strategic partnership in 2012**. The ASEAN is central to **India's Act East Policy** and its vision for the wider Indo-Pacific.
3. The ASEAN comprises **Indonesia, Thailand, Vietnam, Laos, Brunei, the Philippines, Singapore, Cambodia, Malaysia and Myanmar**.

ECONOMY

RBI STOPPED CREDIT LINES FROM FINTECH FIRMS

The **Reserve Bank of India (RBI)** has issued a notification **disallowing non-bank prepaid wallets** and **prepaid cards** from loading credit lines — preset borrowing limits — into these platforms. This comes in the backdrop of a boom in credit instruments such as **fintech-driven credit cards** and buy-now-pay-later wallets.

What has RBI said?

1. The banking regulator has clarified that its master direction on **prepaid payment instruments (PPIs)** does not permit loading of PPIs from credit lines — a practice being undertaken by **several fintech credit card companies**.
2. These companies typically tie up with banks or NBFCs and offer credit lines into their prepaid wallets.
3. Such practice, if followed, should be stopped immediately. Any non-compliance in this regard may attract penal action under provisions contained in the **Payment and Settlement Systems Act, 2007**,” the RBI noted.

What are PPIs?

1. The RBI defines **prepaid payment instruments (PPIs)** as payment instruments that facilitate the buying of goods and services, including the **transfer of funds**, financial services, and remittances, against the value stored within or on the instrument.
2. **PPIs** are in the form of **payment wallets, smart cards, mobile wallets**, magnetic chips, vouchers, etc. As per the regulations, banks and NBFCs can issue PPIs.

BLACK SWAN EVENT MAY TRIGGER: RBI

A study by the **Reserve Bank of India (RBI)** has spoken about the **possibility of capital outflows** to the tune of \$100 billion (around Rs 7, 80,000 crore) from India in case of a major global risk scenario or a “**black swan**” event.

What is a ‘black swan’ event?

1. A **black swan** is a **rare, unpredictable event** that comes as a surprise and has a significant impact on society or the world.
2. These events are said to have **three distinguishing characteristics** – they are **extremely rare** and outside the realm of regular expectations; they have a **severe impact** after they hit; and they seem probable in hindsight when **plausible explanations appear**.
3. The **black swan theory** was put forward by author and investor **Nassim Nicholas Taleb** in 2001, and later popularised in his 2007 book – **The Black Swan: The Impact of the Highly Improbable**. The Sunday Times described his work as one of the 12 most influential books since World War II.
4. In his book, Taleb does not try to lay out a method to predict such events, but instead stresses on building “**robustness**” in systems and strategies to deal with black swan occurrences and withstand their impact.
5. The term itself is linked to the **discovery of black swans**. Europeans believed **all swans to be white until 1697**, when a **Dutch explorer spotted the first black swan** in Australia.
6. The metaphor ‘**black swan event**’ is derived from this unprecedented spotting from the 17th century, and how it upended the West’s understanding of swans.

'RAISING & ACCELERATING MSME PERFORMANCE' SCHEME INAUGURATED

Prime Minister on 30 June 2022 inaugurated the '**Raising and Accelerating MSME Performance**' scheme at Vigyan Bhawan in the national capital. According to Prime Minister's Office (PMO), the scheme has outlay of around Rs 6,000 crore. The scheme aims to **scale up the implementation capacity and coverage of Medium Small and Micro Enterprises (MSME)** in the states, with impact enhancement of existing MSME schemes.

What

1. It will complement the **Aatmanirbhar Bharat Abhiyan** by **fostering innovation, encouraging ideation, incubating new business** and entrepreneurship by developing quality standards, improving practices and processes, enhancing market access, deploying technological tools and **Industry 4.0** to make MSMEs competitive and self-reliant.
2. Along with the RAMP scheme, PM Narendra Modi also inaugurated the '**Capacity Building of First-Time MSME Exporters**' scheme and new features of the '**Prime Minister's Employment Generation Program**' (PMEG).
3. '**Prime Minister's Employment Generation Program**' include an increase in the maximum project cost to **Rs 50 lakh (from Rs 25 lakh)** for the manufacturing sector and **Rs 20 lakh (from Rs 10 lakh)** in the service sector and the inclusion of applicants from **aspirational districts** and transgenders in the Special Category applicants for availing higher subsidies.
4. The Prime Minister also **digitally transferred assistance** to beneficiaries of PMEGP for 2022-23.
5. '**Udyami Bharat**' is reflective of the continuous commitment of the government, right from day one, **to work towards the empowerment of MSMEs**.

Flashback

1. The government has launched several initiatives from time to time like **MUDRA Yojana, Emergency Credit Line Guarantee Scheme, and Scheme of Fund for Regeneration of Traditional Industries (SFURTI)** to provide necessary and timely support to the MSME sector, which has helped benefit crores of people across the country.
2. During the event, PM Modi also announced the results of the **MSME Idea Hackathon, 2022**.
3. Launched on 10 March this year, this Hackathon is aimed at **promoting and supporting the untapped creativity of individuals**, promoting the adoption of the latest technologies and innovation among MSMEs. The selected **incubatee ideas** will be provided funding support of up to Rs 15 lakhs per approved idea.

WTO APPROVES PACKAGE OF TRADE AGREEMENTS

The **World Trade Organization's 164 members** approved a **series of trade agreements** early on 17 June 2022 that included **commitments on fish and pledges on health and food security** after more than five gruelling days of negotiations.

About agreement

1. The deals were ground out over five days of bargaining at a conference of **more than 100 trade ministers** that was seen as a test of the ability of nations to strike multilateral trade deals amid **geopolitical tensions heightened by the Ukraine war**.
2. Delegates cheered after they passed the package of **six agreements** just before dawn on 17 June 2022.

3. The package included the **two highest profile deals** under consideration - **on fisheries** and on a **partial waiver of intellectual property (IP) rights** for COVID-19 vaccines.
4. The accord to **curb fishing subsidies** is only the second multilateral agreement setting new global trading rules struck in the **WTO's 27-year history** and is far more ambitious than the first, which was designed to cut red tape.
5. The **fishing subsidies deal** has the potential to reverse collapsing fish stocks. Though pared back significantly, it still drew approval.
6. The **deal on a partial IP waiver** to allow developing countries to produce and **export COVID-19 vaccines** has divided the WTO for nearly two years, but **finally passed**.
7. One agreement had also been reached on 16 June 2022, on maintaining a **moratorium on e-commerce tariffs**, which is considered vital to allow the free flow of data worldwide.

SCIENCE AND TECHNOLOGY

FIRST 'DEMAND DRIVEN' SATELLITE LAUNCHED

NewSpace India Limited (NSIL) on 23 June 2022 successfully undertook the launch of **GSAT-24** in its first "**demand-driven**" communication satellite mission post space sector reforms, leasing the entire capacity on **board to Direct-to-Home (DTH) service provider Tata Play**.

More about satellite

1. Built by **Indian Space Research Organisation (ISRO)** for NSIL, **GSAT-24** is a 24-Ku band communication satellite **weighing 4180 kg** with **pan-India coverage** for meeting DTH application needs.
2. **GSAT-24 communication satellite** launched on-board **Ariane-V (VA257 flight)** from Kourou, French Guiana (South America).
3. **Ariane-V (VA257 flight)**, operated by **French company Arianespace**, also carried **Measat-3d communication satellite** from Malaysia as other co-passenger.
4. The **entire satellite capacity on-board GSAT-24** will be leased to its committed customer **Tata Play**, the DTH business of Tata Group, for meeting their DTH application needs.
5. GSAT-24 is configured on **ISRO's proven I-3k Bus** with a **mission life of 15 years**.
6. The entire mission is **fully funded by NSIL** -- satellite, launch, launch campaign, insurance, transportation, in-orbit maintenance and support.
7. **GSAT-24** was successfully injected into its intended **Geo-Synchronous Transfer Orbit (GTO)** with Perigee: 250 km and Apogee: 35825 km.

Flashback

1. As part of "**space reforms**" announced by the government in **June 2020**, NSIL, incorporated in March 2019, was mandated to **undertake operational satellite missions** on a "**demand driven**" model, wherein it has the responsibility to build, launch, own & operate satellites and provide services to its committed customer.
2. "**Demand-driven**" mode basically means when satellite is launched, **one will know who the end customers** are going to be and what's the kind of utilisation and commitment so that you have **very effective utilisation of this satellite capacity** once it goes into orbit," NSIL said.
3. Earlier, the mode was more **supply driven**, with capacity being leased after the launch with largely no firm commitment by customers beforehand.
4. With the successful launch of GSAT-24, NSIL will be **owning and operating 11 communication satellites in-orbit** and would meet the bulk of the communication needs of the country.

8. The orbit of GSAT-24 would be raised from GTO to **Geo Stationary Orbit (GSO)**, through a series of orbit-raising manoeuvres using the satellite's on-board propulsion system.

MICROPLASTICS DISCOVERED IN ANTARCTIC SNOW

For the first time, **microplastics** have been found in **freshly fallen snow in Antarctica**. The **pollutant**, scientists argue, poses a growing threat to the **region's ecosystem** and could increase the **melting of ice and snow**. While microplastics have been found across the world, from the **world's deepest ocean floors** to the **peak of Mount Everest**, researchers say that **this is the first time** that they have been found in freshly fallen snow in Antarctica.

What are microplastics?

1. **Microplastics are tiny plastic debris** that are **smaller than 5 mm** in length, tinier than even a grain of rice.
2. There are **two types of microplastics**. **Primary microplastics** are **tiny particles** that are purposely designed as such for commercial use, like in **cosmetics, nurdles-plastic pellets** used in industrial manufacturing and in fibres from synthetic textiles like nylon.
3. **Secondary microplastics** are formed through the **degradation of larger plastic items** like bottles, fishing nets and plastic bags.
4. This occurs through **exposure to the environment**, like radiation from the sun, wind and ocean waves.

NARFI DEVELOPED

“National Air Quality Resource Framework of India (NARFI) has been developed by the National Institute of Advanced Studies (NIAS), Bengaluru. The framework aims at providing an all-inclusive guide to collecting **air quality data**, studying its impact and **implementing science-based solutions**.

Highlights of the National Mission

1. Bringing together stakeholders to develop solutions with a **multi-sectoral science and technology approach**, while addressing the **social aspect of the problem**
2. **Research-based audited Information** and industry-oriented solutions will be shared in an easy-to-understand format.
3. This would include **short-term basic training modules** tailored for different groups such as active ground level staff in government establishments, implementers, media and policymakers.

The NARFI will evolve around the following five modules:

1. **THEME-1:** Emission Inventory, Air Shed, and Mitigation
2. **THEME-2:** Impacts on Human Health and Agriculture
3. **THEME-3:** Integrated Monitoring, Forecasting and Advisory Framework
4. **THEME-4:** Outreach, Social Dimension, Transition Strategy and Policy
5. **THEME-5:** Solutions, Public-Industry Partnership, Stubble Burning & New Technologies.

FIRST FRACTIONALLY-OWNED SOLAR POWER PLANT

An **investment platform PYSE** has launched **India's first fractionally-owned solar power plant** in Karnataka. The platform **helps retail investors to invest** in sustainable projects that create social and environmental impacts from a ticket size as low as Rs 5,000. PYSE has strengthened its **leadership position** in the **renewable energy space** by launching **India's first and largest fractionally-owned solar power plant** in Karnataka.

What

1. The **solar power plant** is an **Rs 26 crore project** with an average investor ticket size of Rs 25,000.
2. The project has been strategically divided into **four tranches** with the first three tranches worth Rs 16 crore.
3. Tranche 1, 2, and 3 had been **oversubscribed by 2.5x** and the money was raised on an average of 3 days.
4. The project is **backed by more than 600 retail investors** and is equipped to supply solar power to marquee clients operating manufacturing plants.
5. PYSE will launch the fourth and final tranche with a minimum investment of Rs 5,00,000.
6. The plant is set to be commissioned by the **end of July** and is designed to **offset 65 lakh kgs of carbon footprint** every year for the next twenty-five years.
7. As a Covid-born company, PYSE currently manages **40+ crore AUM** (asset under management) with **more than 4,000+ investors** and the company is looking to build 200 crore worth of green assets by March 2023.

ISRO PLACES 3 SINGAPORE SATELLITES

The **Indian Space Research Organisation (Isro)** on 30 June 2022 successfully launched **three Singaporean satellites** in a commercial mission of the **New Space India Limited**. This was the **second launch of the year** by the space agency, the first one having placed an Indian Earth Observation Satellite in orbit in February. Along with the commercial satellites, the space agency also sent on board six in-orbit experiments mounted on the fourth stage of the rocket in the current mission.

What

1. The workhorse rocket of the country, **PSLV-C53**, took off from Sriharikota and injected the **three satellites into precise orbits**. The launch vehicle flew in the **core-alone configuration** where **no strap-on motors** are used other than the four main engine stages.
2. The main payload of the mission was a **365 kg Singaporean DS-EO satellite**, which is an **electro-optic, earth-observation satellite** capable of providing full-colour images for land classification and disaster-relief operations.
3. The **155 kg NeuSAR satellite** is its first small commercial satellite capable of providing images in the day or at night under all weather conditions.
4. The third satellite was Nanyang Technical University's **2.8kg Scoob-1**, the first in the student satellite series for giving hands-on training for the university's satellite research centre.

What is POEM

1. The **PSLV Orbital Experiment Module (POEM)** uses the spent fourth stage of the rocket as an in-orbit platform by adding **solar panels**, a battery, and a navigation control system.
2. Usually, after putting the satellite in orbit, the **rocket stages decay**, return to the atmosphere and burn up. But, with the addition of a **little power to keep the stage in orbit**, they can be utilised for experiments.
3. After the primary mission, the **PSLV 4 stage** is now going to ride **POEM in-orbit**. The stage will be generating power, **stabilised with attitude control** and also having certain experiments hosted by some of the young startups enabled by **IN-SPACe**.
4. This is the second time that the space agency has **utilised the stage for in-orbit experiments**, the first time being in 2019 when the student organisation **SpaceKidz India** put its **KalamSat** on the **rocket's PS-4 stage**.

- In addition to the international payloads, the rocket also carried **six experiments** in its fourth stage, including two from Indian startups **Digantara and Dhruva Space**.

CAPSTONE LAUNCHED

On 29 June 2022, **NASA launched CAPSTONE**, a microwave oven-sized **CubeSat** weighing just **55 pounds (25 kg)**. CAPSTONE, short for **Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment**, is designed to test a unique, **elliptical lunar orbit**.

More about satellite

- The satellite, launched on **Rocket Lab's Electron rocket** from the Rocket Lab Launch **Complex 1**, is heading toward an orbit intended in the future for **Gateway**, a **Moon-orbiting outpost** that is part of **NASA's Artemis program**.
- As a **pathfinder for Gateway**, **CAPSTONE aims** to help reduce risk for future spacecraft by **validating innovative navigation technologies**, and by verifying the dynamics of the **halo-shaped orbit**.
- The orbit is known as a **near-rectilinear halo orbit (NRHO)**. It is significantly elongated, and is located at a precise balance point in the **gravities of Earth** and the Moon. This offers stability for **long-term missions like Gateway**.
- At the Moon, **CAPSTONE will enter NRHO**, where it will fly within **1,600 km of the Moon's North Pole** on its near pass and 70,000 km from the South Pole at its farthest.
- The spacecraft **will repeat the cycle every six-and-a-half days** and maintain this orbit for at least six months to study dynamics.
- The spacecraft is **currently in low-Earth orbit**. It is attached to Rocket Lab's Lunar Photon.

MISCELLANEOUS

MO BUS RECEIVED UN'S PUBLIC SERVICE AWARD

Mo Bus, the bus service of **Odisha's Capital Region Urban Transport (CRUT) authority**, has been recognised by the **United Nations** as **one of 10 global recipients** of its **annual Public Service Awards for 2022**, it was reported on 22 June 2022. The **public transport service** has been recognised for its role in "**promoting gender-responsive public services to achieve the SDGs** (Sustainable Development Goals)", the UN said.

About Mo Bus service

- The **Mo Bus service** was launched on 6 November 2018 to ensure "**transformation of the urban public transport scenario** in the city and its hinterland through use of **smart technology, service benchmarking** and customer satisfaction".
- The buses are designed to **integrate smart technologies** such as **free on-board Wi-Fi service, digital announcements, surveillance cameras, and electronic ticketing**.

UN Public Service Award

- The UN describes its **Public Service Awards** as the "**most prestigious international recognition of excellence in public service**".
- It is intended to reward "**the creative achievements** and contributions of public service institutions that lead to a more effective and responsive public administration in countries worldwide".
- The **first Awards ceremony was held in 2003**, and the UN has since received "an increasing number of submissions from all around the world".

3. CRUT says that to increase women's participation in the workforce, and to make women riders feel safer, it is committed to ensuring that 50% of Mo Bus Guides (conductors) are women.
4. Airconditioned Mo Bus fares start at **Rs 5 and go up to Rs 70**; non-AC fares are from Rs 5 to Rs 55.

MYSTERY OF 'BLACK DEATH' SOLVED

German scientists say they have finally discovered the **origins of the deadliest pandemic** in recorded history, the **medieval bubonic plague**, using **DNA sequencing**. Also known as the '**Black Death**', the plague that spread through **Eurasia and Northern Africa** between 1346 and 1353 was one of the **largest infectious disease episodes in human history**, drastically reducing the world's population. While studies have put the toll at 25 million, estimates suggest the number of fatalities could have reached 200 million.

What

1. A German research team has **conducted DNA analysis** of seven individuals who died in the **14th century** and sequenced the strain of the original **bacterium Yersinia pestis (Y. pestis)**, which was responsible for the disease.
2. The findings, which have been peer-reviewed, were published in the British scientific journal Nature.
3. The study also concluded that the plague originated in **central Eurasia**, likely in the **Tian Shan region** of modern-day Kyrgyzstan.
4. Previous **genetic analyses of DNA extracted from graves** had indicated that a strain of the **bacterium Y. pestis** was definitively to blame for the plague.
5. However, over the years, four major lineages of these bacteria were identified, whose descendants can still be found in **rats** today.
6. The **Bubonic plague** has been recorded as **first having infected Central Asia**, before moving on to **Southeast and South Asia**, before spreading via Northern Africa in Northern Europe, and ultimately reaching Siberia. The disease spread through **land and sea trade routes**.
7. The plague's effects on **Asian and African nations** are less documented and studied because of the historic **Eurocentric focus in research**.

FIRST-EVER TORCH RELAY FOR CHESS OLYMPIAD

Prime Minister on 19 June 2022 flagged off the **first-ever torch relay** for the **Chess Olympiad** ahead of the 44th edition of the event, which is to be held in Mahabalipuram from 28 July to 10 August 2022.

What

1. The international chess body, **FIDE**, for the **very first time** has instituted the torch relay, which is part of the Olympic tradition but was never done in the Chess Olympiad.
2. The **torch will be taken to 75 cities** in a span of 40 days before arriving in Mahabalipuram near Chennai. At every location, chess grandmasters of the state will receive the torch.
3. Leh, Srinagar, Jaipur, Surat, Mumbai, Bhopal, Patna, Kolkata, Gangtok, Hyderabad, Bengaluru, Thrissur, Port Blair and Kanyakumari are among the 75 cities.
4. In nearly 100 years of the history of the Chess Olympiad, it's the **first time that India will be hosting the prestigious event**.
5. **With 188 countries registered** for the upcoming Olympiad, the country is set to witness a huge congregation of nations for a sporting event for the first time on Indian soil.

DELHI: VIJAY NAGAR 9717380832 & OLD RAJENDER NAGAR 9811293743 | JAIPUR: 8290800441
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INTERNATIONAL YOGA DAY

International Yoga Day is celebrated **to raise awareness** about the importance of Yoga in the lives of humans. The concept of the International Day of Yoga was first proposed by Prime Minister during his speech at the **UN General Assembly (UNGA)**, on 27 September 2014.

What

1. The **United Nations General Assembly** on 11 December 2014 announced that **21 June** will be seen as **International Yoga Day** or **World Yoga Day**.
2. Since 2015, **International Yoga Day** is being celebrated on 21 June worldwide.
3. 21 June also called **summer solstice**, is the **longest day of the year**. Therefore, it was decided that the **International Yoga Day** would be celebrated on this day.
4. The Theme of 2022 International Yoga Day is "**Yoga for Humanity**".
5. People around the world embraced yoga to stay healthy and rejuvenated and to fight social isolation and depression during the pandemic.

WORLD'S BIGGEST BACTERIUM FOUND

Scientists have discovered the **world's largest bacterium** in a **Caribbean mangrove swamp**. Most bacteria are **microscopic**, but this one is so big **it can be seen with the naked eye**. The thin white filament, approximately the **size of a human eyelash**, is "**by far the largest bacterium known to date**".

What

1. Scientist, found the first example of this bacterium — named **Thiomargarita magnifica**, or "**magnificent sulfur pearl**" — clinging to sunken mangrove leaves in the archipelago of Guadeloupe in 2009.
2. Scientists have **not yet been able to grow it in lab culture**, but the researchers' say the cell has a structure that's unusual for bacteria.
3. One key difference: It has a **large central compartment**, or **vacuole**, that allows some cell functions to happen in that controlled environment instead of throughout the cell.
4. The acquisition of this **large central vacuole** definitely helps a cell to bypass physical limitations ... on how big a cell can be.
5. The researchers said they aren't certain **why the bacterium is so large**, but researchers hypothesized it may be an adaptation to help it avoid being eaten by smaller organisms.

ABORTION LAWS AROUND THE WORLD

With the **US Supreme Court** overturning the **landmark 1973 Roe v Wade decision** that established a **constitutional right to an abortion**, the United States is now among the few dozen countries that have severely restricted access to the procedure. As of now, **abortions are illegal or heavily restricted** in at least 11 US states.

What is India's abortion policy?

1. **India's Medical Termination of Pregnancy Act, 1971** allows abortion **until 20 weeks of pregnancy**.
2. An amendment in 2021 raised the ceiling for abortions to **24 weeks for special categories of pregnant women** such as rape or incest survivors that too, with the approval of two registered doctors.
3. There is **no upper gestation limit** for the procedure in cases of **foetal disability** as long as it is approved by a medical board of specialist doctors set up by the governments of states and union territories.

INDIA'S FIRST MRNA VACCINE FOR COVID-19

The country's **first home-grown mRNA Covid-19 vaccine** — **GEMCOVAC-19** — developed at **Pune's Gennova Biopharmaceuticals** has got a '**restricted emergency use**' nod for the 18-and-above age group. As **mRNA vaccines** are required to be kept at **sub-zero temperatures**, it was a mammoth task for Gennova scientists to develop a **thermostable mRNA Covid-19 vaccine**.

The mRNA platform

1. As the **Covid-19 pandemic** spread, an **mRNA vaccine** candidate was the first to enter **human trials globally**.
2. The **first two vaccines** that were made available for use in the US were based on **mRNA technology**.
3. Unlike vaccines that put a **weakened or inactivated virus** in your body to activate an **immune response**, these two Covid-19 vaccines (Pfizer-BioNTech and Moderna) used **messenger RNA or mRNA** to deliver a message to your immune system.
4. Basically, the technology uses **genetically engineered mRNA** to instruct cells to make the **S-protein** found on the surface of the Covid-19 virus.
5. According to reports from **US-based Mayo Clinic**, after vaccination, the **muscle cells** begin making **S-protein pieces** and displaying them on cell surfaces. This causes the body **to create antibodies**.
6. But these vaccines have to be stored at **sub-zero temperatures** as mRNA is fragile and breaks down easily.
7. Scientists had to **innovate to suit local needs** to make it affordable and deployable.
8. The new vaccine **can now be stored at the temperature** of a **standard medical refrigerator**.

ANTHRAX FOUND IN KERALA

After finding several **carcasses of wild boar**, Kerala on 30 June 2022 confirmed the **presence of anthrax**, a serious infectious disease caused by **spore-forming bacteria**, in Athirappilly of Thrissur district. Anthrax has usually been found in **India's southern states** and is less frequently found in the northern states. Over the past years, it has been reported in **Andhra Pradesh, Jammu and Kashmir, Tamil Nadu, Assam, Orissa and Karnataka**.

What is Anthrax?

1. **Anthrax**, also known as **malignant pustule** or **wool sorter's disease**, is a rare but serious disease caused by the **rod-shaped bacteria** known as **Bacillus anthracis**.
2. It occurs naturally in soil and, according to the WHO it is primarily a disease of **herbivores**, with both domestic and wild animals being affected by it.
3. **Anthrax is a zoonotic disease**, meaning that **it is naturally transmissible from animals** (usually vertebrae) to humans.
4. **Anthrax is generally regarded as non-contagious**. There have been instances of **person-to-person transmission** however, such instances are extremely rare.

How do humans get infected?

1. **Humans almost always contract the disease** directly or indirectly **from animals or animal products**.
2. People get infected with **anthrax** when **spores enter the body**, through **breathing, eating contaminated food or drinking contaminated water**, or through cuts or scrapes in the skin.
3. The spores then get “**activated**” and multiply, spreading across the body, producing toxins and causing severe illness.
4. **Humans can acquire the disease** by handling carcasses, bones, wool, hides or other products from infected animals.
5. People that are most at **risk of contracting the disease** are people that work with animals, such as **farmers, veterinarians, livestock handlers**, wool sorters and laboratory professionals, according to the National Health Portal.

FACT TO REMEMBER:

1. **CRITICAL INFORMATION INFRASTRUCTURE**
2. **PROTEST FOR ECO-SENSITIVE ZONES**
3. **SC'S 'KIHOTO HOLLOHAN' JUDGMENT**
4. **'PARTNERS IN THE BLUE PACIFIC' LAUNCHED**
5. **RBI STOPPED CREDIT LINES FROM FINTECH FIRMS**
6. **WTO APPROVES PACKAGE OF TRADE AGREEMENTS**
7. **FIRST 'DEMAND DRIVEN' SATELLITE LAUNCHED**
8. **MO BUS RECEIVED UN'S PUBLIC SERVICE AWARD**
9. **ANTHRAX FOUND IN KERALA**
10. **INTERNATIONAL YOGA DAY**

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