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**Current Affairs  
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**JULY 2023**



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# Optional Subject

## GEOGRAPHY

Ms. NIVEDITHA R.  
Faculty- Geography

Faculty- GS (Polity)  
Optional- Geography  
UPSC result- 2 Mains & 1  
Interview (2023)



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# 1. Euclid Space Telescope Launched by SpaceX from Florida

**Objective:** To explore the composition and evolution of Dark Universe and its role in expansion of Universe

**Mission:** Observe billions of galaxies out to 10 billion light years and create a map of the large-scale structure of Universe and measure Red shift. Expected date of results: 2030.

**Launch:** From Cape Canaveral, Florida, USA in SpaceX Falcon 9 rocket to be placed in L2

**Mission of:** European Space Agency

**Range of Telescope:** Visible and Near Infrared

## Supplementary facts:

1. Significance of Name: Euclid was a Greek Mathematician and is considered as the Father of Geometry
2. Soyuz rocket belong to Russia which were meant to launch Euclid earlier.
3. About ESA: Established in 1975 in Paris by 10 countries in Western Europe, the membership now extends to 22 countries in Europe.

## Supplementary concepts:

1. Dark Universe vs Black Hole

[What is Dark Matter and Dark Energy? - YouTube](#)

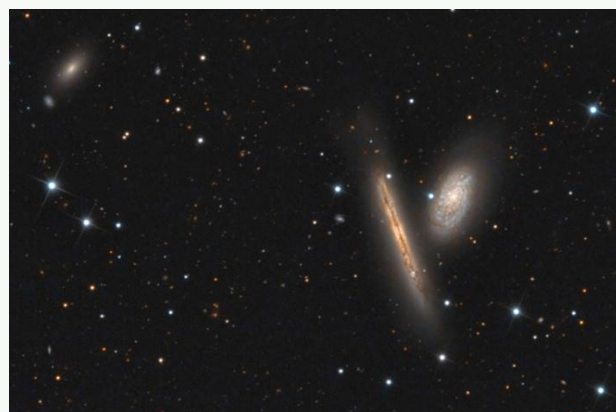
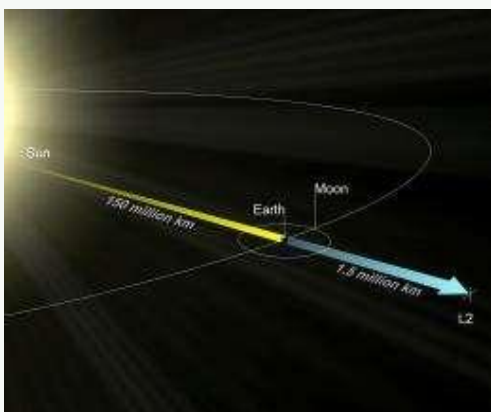
[Dark matter: The matter we can't see - James Gillies - YouTube](#)

[Black Holes Explained – From Birth to Death - YouTube](#)

2. L2 point

[What are Lagrange Points? We Asked a NASA Scientist - YouTube](#)

L2 point has no interference of infrared emitted from Earth







## 2. Ingenuity reconnects to NASA after 63 days with assistance of Perseverance Rover

**Loss of Connection:** During its 52<sup>nd</sup> flight when it was descending towards the Jezero Crater for Landing

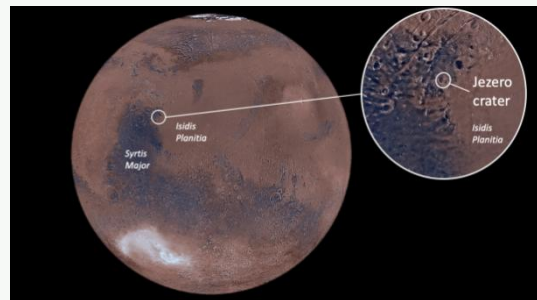
**Reason cited:** Jezero Crater has more rugged terrain which can make communication drop outs more likely.

### Supplementary Facts:

1. Perseverance Mission  
[Mars 2020 Perseverance Rover - NASA Mars](#)
2. Jezero Crater
3. About NASA

### Supplementary concepts:

1. Chopper, Lander, Rover and Orbiter



## 3. Artificial womb for premature babies

**Statistic:** 9 Lakh premature babies die every year: WHO

**Definition:** Babies born after 6 months of pregnancy or less are considered as premature babies

**Artificial womb:** Ex-situ chamber that helps foetus develop outside its mother.

## 4. Cancer fighting key in Elephant's testicles

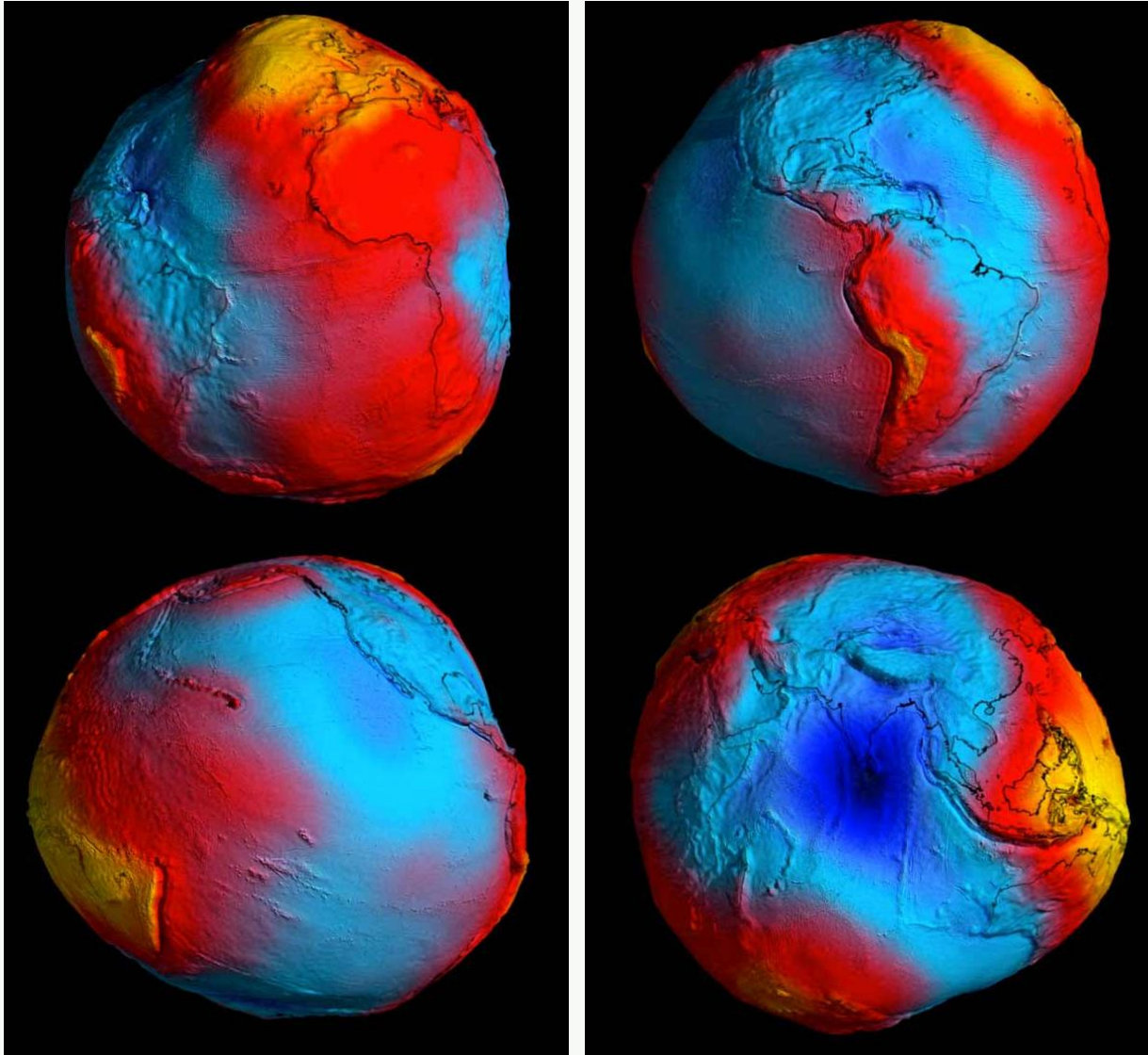
Conventional understanding suggest that more the number of cells an organism has, the higher is the possibility of getting cancer. However elephants have low incidence of cancer (5%) despite having more cells than humans (25%)

**Protein that helps fight against cancer:** Guardian of the Genome" aka TP53 gene. It repairs and eliminates irreparable cells

**Difference:** Humans have one TP53 while elephant have 20.



## 5. Gravity hole in Indian Ocean. Technically: Indian ocean geoid low



Yellow – Strongest Gravity

Blue – Weakest Gravity

Gravity is directly proportional to mass. Gravity hole indicates a place where there is weakest gravity (Dark blue spot in image 4). Weak gravity is due to less mass under that spot.

**Reason cited:** Sinking of ancient ocean bed due to tectonic movement

**Area:** 3 million sq. km in SW of Kanyakumari

**Effect:** Because of the sunk part, the sea level is lower by 106 m from surrounding areas



## 6. Gravitational waves and cosmic aum recorded

**Observed by:** NANOgrav, USA

**Observation of:** 115 pulsars in milkyway as “galaxy sized antenna” to spot low frequency gravitational wave which cannot be spotted by earth based LIGO observatories due to small size. Low frequency gravitational wave distorts space-time fabric. This causes these pulsars to swing along with those waves. The pulses emitted from pulsars also change in timing due to the movement of pulsar. This movement, if noted, can be the evidence for low frequency gravitational waves.

[Scientists turn dead stars into living laboratories called pulsar timing arrays - YouTube](#)

**Significance:** Till now observations have been made for “high frequency” gravitational waves by merging of small black holes. The recent observation is an evidence for merger of two super massive blackholes that is providing this low frequency gravitational wave background. This low frequency background is the cosmic “aum”.

**Limitation:** These observation of pulsar is an evidence for low frequency gravitational waves, not a detection of the same.

**Supplementary concept:**

1. Pulsars
2. Gravitational wave observatory

## 7. Vitamin D reduces heart attack

**Previous conception:** Vitamin D do not affect the Cardio Vascular Disease (CVD) Risk

**Research:** Vitamin D supplements reduced CVD risk by 9%. Heart attacks was 19% lower due to those supplements

**Research Method:** Randomised Controlled Trials

**Supplementary concept:**

1. Randomised Control Trial

## 8. Artemis Accord and Benefits for India

**Artemis accord:** a multilateral arrangement with a set of 13 principles grounded in the outer space treaty 1967 for Artemis program given by NASA. It is Non binding in nature. It has 27 signatories including India. Russia and China are not signatories.

**Artemis program:** Setting camp in moon by 2025 for deep space exploration

**Benefits for India:**





1. Collaboration with other signatories
2. Co-financing opportunities for space projects of India
3. Chandrayaan program can get a boost
4. Capital investment can be attracted towards Indian state startups
5. Companies in space sector from India can become part of Global supply chain

## 9. International Lunar Research Station of China

**Countries:** China, Russia, Pakistan, UAE

**Aim:** Scientific experiment base in lunar orbit or surface for space exploration

**Progress:** China has successfully landed Change 4 on the far side of the moon.

## 10. WHO international Classification of Diseases and MedDRA

**Objective of the move:**

1. To enhance registry and sharing of regulatory information on medical products worldwide.
2. To establish a unified language that streamlines global regulatory decision-making concerning the safety and efficacy of medical products
3. To offer vital insights into the scope, causes and consequences of diseases and mortality, worldwide

**Collaborators:** WHO's International Classification of Diseases (ICD-11) and ICH's Medical Dictionary for Regulatory activities (MedDRA)

**Definitions:**

ICD-11, the International Classification of Diseases, is the global standard for recording, reporting, analyzing, and comparing causes of illness and death.

It helps countries identify and prioritize key health issues, enabling the development of effective public health policies, impact measurement, resource allocation, treatment improvement, prevention efforts, and clinical recording.

MedDRA, the Medical Dictionary for Regulatory Activities, is a rich and highly specific standardised medical terminology developed by ICH to facilitate sharing of regulatory information internationally for medical products used by humans.



It is used for registration, documentation and safety monitoring of medical products both before and after a product has been authorised for use.

## 11. WHO Traditional Medicine Global Summit

**Significance:** 2023 summit is WHO's first traditional medicine summit

**Venue:** Gandhinagar, Gujarat

**Objective:** Share best practices and mobilize political commitment for development of traditional medicine

**Statistics:** Around 40% of pharmaceutical products use nature based product. 170 Member states asked WHO to provide evidence and data to inform policies and standards. For these reasons WHO established **WHO Global Centre for Traditional Medicine** in Jamnagar, Gujarat, India

## 12. New UN Treaty to protect marine biodiversity

**Objective:** Conserve biodiversity in High Seas

**Commitment:** is legally binding on member states

**Statistics:** More than 17 million tons of plastic entered the oceans in 2021. It constitutes 85% of marine litter and is expected to triple each year by 2040 as per SDG report. More than 1/3<sup>rd</sup> of global fish stocks are exploited due to by-catch.

**Treaty aims:** Polluter pays principle, strengthen resilience, dispute resolution mechanism, reduce by-catch by promoting technology transfer, recognize traditional knowledge and freedom for scientific research and provide area based management tools, including marine protected areas, manage vital habitats in the international sea bed area.

**Supplementary Concept:**

1. UNCLOS
2. GBF 2030

## 13. WTO agricultural committee review Bali Tariff Rate Quota

**Definition:** Tariff rate quotas (TRQ) allow import quantities inside a quota to be charged a lower duty rates than those outside. For example, a country might allow the importation of 5,000 tractors at a tariff rate of 10%. However, any tractor imported above this quantity would be subject to a tariff rate of 30%.

**2013 Bali Ministerial Decision:** Clarified the procedure for administering TRQ. If a quota is persistently under filled, then the importing government would have to apply one of a prescribed set of methods for administering quotas aimed at removing impediments.



Example: If the country imports only 3000 tractors out of its 5000 quota, it must reduce the duty rate on in-quota goods from 10% to 5%.

## 14. WTO agricultural committee discusses counter notification submitted by USA, Canada, Australia etc questioning India's methodologies on MSP on rice, wheat.

**Accusation:** When calculated according to WTO Agreement on Agriculture methodology, India's market price support for each of these pulses far exceeded its WTO allowable levels of trade-distorting domestic support.

**Problem Areas:** Issues with the quantity of production used in market price support calculations, exclusion from India's notification of information on the total value of production for each category of pulse (information necessary to assess compliance with WTO commitments), issues with currency conversions, and issues regarding the prices used in India's calculations.

### Supplementary Fact:

This is the third U.S. COA counter notification regarding another country's measures. Previous U.S. counter notifications have addressed India's market price support for cotton, rice and wheat. Australia has submitted a counter notification regarding India's market price support for sugarcane.

### Supplementary Concept:

1. MSP
2. WTO Agreement on Agriculture and Peace Clause

## 15. China's new foreign relation policy

**Crux of the policy:** China has the right to take, as called for, measures to counter or take restrictive measures against acts that endanger its sovereignty, national security and development interests in violation of international law or fundamental norms governing international claims

**Significance:** With the help of this law, President Xi will be able to protect several initiatives such as the ambitious Belt and Road Initiative and Global Development Initiative that have been launched during his time in office

**Possible reason for the change:** USA sanctions that blacklisted more than 1300 Chinese Firms. Xi also has earlier to Joe Biden that the world was big enough for both countries to prosper.

### Supplementary Concepts:





1. Belt and Road Initiative of China
2. Island Chain Policy of USA

## 16. USA destroys last stock of its chemical weapons

Chemical weapon convention- by OPCW at Hague- has 193 member countries. Israel has signed but hasn't ratified, N Korea, Egypt, Sudan have not yet signed

**Aim-** Prohibit and destruct current chemical weapons

## 17. Cluster bombs

**Context:** US supplies Cluster weapon or cluster munitions to Ukraine

**Definition:** It's an air based or ground based weapon that drops smaller bombs or sub munitions from it **Statistic:** More than 100 countries have banned them under convention on cluster munitions. USA and USSR did not sign

## 18. Neurostrike weapons

**Working:** It silently attacks the central nervous system using micro wave or other direct energy weapons(DEW)

**Country using it:** China is leading in this through biotech researches to aid military attacks despite US sanctioned China's Academy of Military Medical Sciences

## 19. Source to Sea Initiative, Clean and Healthy oceans initiative of FAO, ADB, EBRD, CAF and UNESCO

**Aim of Source to sea initiative:** The initiative will direct up to \$115 million in grants to clean up coastal areas

**Aim of Clean and Healthy oceans initiative:** To curb land-based pollution of our oceans through policy and regulatory innovation, infrastructure investments, and nature-based solutions. The programme will also map land-based sources of **ocean pollution** to better understand hypoxia effects and apply **ocean science** to develop solutions that improve both human and ocean health.

**Statistic and reason:** Oceans have lost **nearly two per cent** of their oxygen since the 1950s, resulting in "dead zones," which don't have enough oxygen to sustain living tissue. Pollution from **land-based sources**, including the overuse of fertilizer, organic waste from livestock, and untreated wastewater, typically drive hypoxia worldwide.

**Supplementary Concept:**

1. Blue Economy



## 20. Solar Shooting Stars on Sun's surface AKA Coronal Rain

**Concept:** Sun has an outer region (not a layer of the Sun) called the Corona, which is much hotter (about 1 million degree Celsius) than the outer layer of the sun, i.e. photosphere (about 6000 degree Celsius). When cooler pockets form suddenly in the corona, the atmosphere's diffuse material rapidly condenses into clumps of plasma. These clumps then fall towards the sun which appear as shooting stars if seen from the surface of the sun.

**Observation:** Done by ESA's Solar Orbiter (SolO)

**Supplementary concepts:**

1. ESA's solar orbiter, NASA's Parker solar probe, India's Aditya L1
2. Layers of the Sun

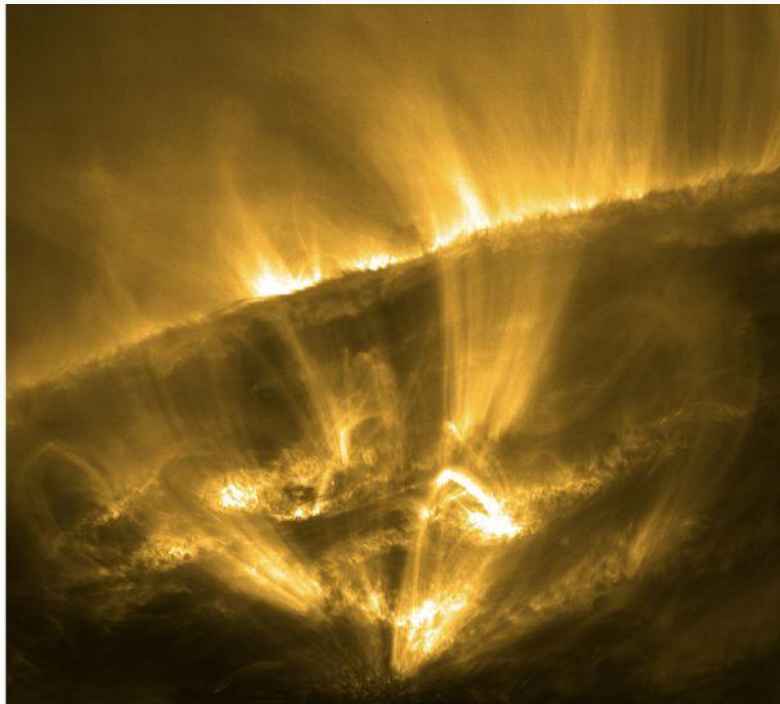


Image: SolO view on 30 March 2022 showing a partial section of the sun with gas at 1 million degrees. Bright coronal rain dots the foreground

## 21. Iron Nanospheres in Blood Falls of Antarctica

**Fact:** Taylor Glacier in Antarctica has a water fall that appears in Crimson Red. It was discovered in 1911 by a British expedition in the McMurdo Valley

**Reason:** The red hue was due to the presence of Iron rich Nanospheres.

**Nanospheres:** Nanospheres are not considered as minerals. Minerals have atoms arranged very specifically in a crystalline structure. Nanospheres aren't crystalline



**Significance of the discovery:** Earlier nanospheres were undetected as the equipments used to investigate the phenomena was looking only for presence of minerals. Use of right equipment provides results. This can be a reason why signs of lifeforms are not seen in Mars as the equipment we have sent are looking for life forms similar to earth. In colder planets like Mars, materials formed can be nanosized and non crystalline

## 22. Solar flare causes blackout in USA and Pacific Ocean

**Fact:** an active sunspot region, AR 3354, released an X-class solar flare on July 2<sup>nd</sup>.

**Impact:** The flare's radiation ionized the top of the Earth's atmosphere, causing a 30-minute-long deep shortwave radio blackout over the western United States and the Pacific Ocean

**Flare Classes:** Flares are divided into **three categories** based on their intensity - B-flares, C-flares, and M-flares. B-flares are the weakest flares. The strongest type of solar flares, like the one visible on Sunday from AR3354, are called X-flares. Similar to how the Richter scale counts earthquakes, the strength of solar flare classes increases with magnitude.

Accordingly, an X-class flare has 1,000 more power than a B-class flare and ten times the strength of an M-class flare

**Flare Production:** When magnetic fields surrounding sunspots become entangled, break, and then reconnect, a process known as reconnection happens and produces what is known as a solar flare

**Supplementary concept:**

1. Sun Spot
2. Coronal Mass Ejection

## 23. Quasars and Time dilation in early universe

**Observation:** Quasars are a ferocious class of black holes. scientists compared the brightness of 190 quasars, dating to about 1.5 billion years after the Big Bang event to that of quasars existing today. In doing so, they found that certain fluctuations in the quasar's brightness that occur in a particular amount of time today did so five times more slowly in the most ancient quasars. By comparing the fluctuations of present day quasar and ancient ones, the time dilation in early universe was proved.

**Supplementary Concepts:**

1. **Quasars:** Quasars are supermassive black holes, often situated at the heart of a galaxy, millions to billions of times more massive than our Sun. Quasars are super hungry as they devour any matter in the vicinity by using their immense gravitational





pull. They also emit tremendous amounts of radiation, including jets of high-energy particles, while a glowing disk of matter spins around them.

2. **Time Dilation:** Slowing of time perceived by one observer compared with another observer.

## 24. Semi Cryogenic engine of ISRO - test terminated

**Test:** Firing was supposed to last for 4.5 Seconds but was terminated at 2 seconds due to some unforeseen technical issue

**Semi Cryogenic Engine:** It is ISRO's most powerful rocket engine, which will be used for boosters in the LVM-3 rockets, which are India's heaviest rockets. It is an advancement over the semi-cryogenic engine. Semi Cryogenic engine uses Refined Kerosene which can be stored at normal temperature unlike liquid hydrogen used in cryogenic engine which requires much cooler temperatures

**Supplementary concepts:**

1. Difference between Semi Cryogenic and Cryogenic Engine.

## 25. Yellow Alert in Delhi

Colour Codes	Heat wave	Rainfall	Cyclone	Thunderstorm	Duststorm
<b>Green</b>	Below Actual Maximum Temperature	Below 70 mm/hr	Pre cyclone watch 72 hrs	Below 40 kmph	Below 40 kmph and visibility less than 1000 meters
<b>Yellow</b>	Departure below 4.5 degree	70-115	Cyclone alert at 48 hrs	40-62	40-62 and below 500 meters
<b>Orange</b>	Departure between 4.5-6.5 degree	115-204	Cyclone warning at 24 hrs	62-88	62-88 and below 200 meters
<b>Red</b>	Above 6.5 degree	Above 204	Post Landfall outlook at 12 hrs	Above 88	Above 88 and below 200 meters

## 26. Forever chemicals

They are per- and polyfluorinated alkyl substances, or PFAS, that are considered dangerous to human health. There are more than 12000 PFAs



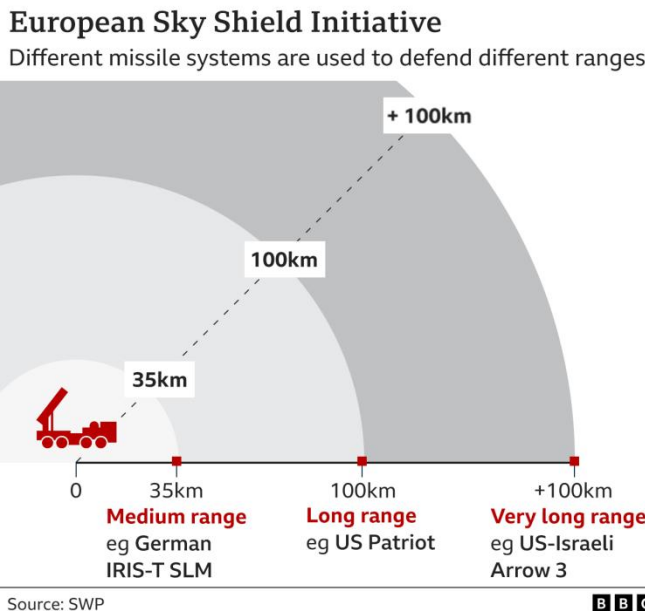
PFAs are man-made chemicals used to make nonstick cookware, water-repellent clothing, stain-resistant fabrics, cosmetics, firefighting forms and many other products that resist grease, water and oil. They are found in 100s of household items

PFAS exposure is linked to problems like cancer, obesity, thyroid disease, high cholesterol, decreased fertility, liver damage and hormone suppression.

Carbon filters can effectively filter the PFAs contained in water

## 27. Switzerland and Austria joins Sky shield project - an European air defence system

Sky Shield system was initiated by Germany following Russia's invasion of Ukraine, and is designed to allow European countries to buy defence systems together, and train together.



## 28. Chandrayaan 3

Chandrayaan 1	Chandrayaan 2	Chandrayaan 3
Lunar orbiter and Impactor to the south pole in Shackelton crater AKA Jawahar point	Lunar orbiter, Vikram Lander and Pragyan Rover to be landed on the south polar region in the near side	Vikram Lander and Pragyan Rove to be landed on the south polar region in the near sider. No orbiter. The propulsion module itself will act as a communication relay satellite
PSLV-XL	LVM3-M1	LVM3-M4



Indigenous tech	Indigenous tech	Indigenous tech. ESA's tracking system will be used
Intended for 2 year period but orbiter functioned for 312 days only	Intended a soft landing, but came out as a hard landing; 7.5 years for orbiter – still working	Intended period 14 days
Mineralogy, Hydrology, Topography, Cartography	Mineralogy, Hydrology, Topography, Cartography	Demonstrate landing and roving
USA, UK, Bulgaria, ESA	None	None
386 crore	978 crore	615 crore

## 29. Dark Stars spotted by James webb telescope

- 3 candidate stars JADES-GS-z13-0, JADES-GS-z12-0 and JADES-GS-z11-0, are the three bright objects that might be supermassive “dark stars”—the first-ever stars to exist in the universe.
- Dark Stars are theoretical stars, which are supposed to have been 10 billion times brighter than the sun. They are thought to have existed in the universe before the kind of stars that exist today.
- “Dark stars” mark the beginning of the cosmic dawn, but they take on extra significance because they are, powered by particles of dark matter.
- Dark Matter is thought to account for about 85% of matter in the universe and to interact only with gravity. It absorbs, reflects and emits no light or energy. Dark matter is therefore undetectable directly, so hypothetical, though it's existence can be inferred by its effect on other things.

## 30. Anthropocene marked from 1950s

A set of 24 separate global indicators was used by a group of researchers to view human activity across the plane. The team tracked activity falling under each of these headings beginning with the year 1750 through 2010 — from the start of the industrial revolution through today — while also monitoring the impact on the Earth System produced by each activity. Such impact would include changes such as ocean acidification, deforestation, greenhouse gas levels, and biodiversity deterioration.

Finally, after viewing each indicator separately, the researchers created a "planetary dashboard" and viewed all 24 together at once.





Almost all graphs show the same pattern. The most dramatic shifts have occurred since 1950. It was therefore said that around 1950 was the start of **the Great Acceleration**.

Of all the candidates for a start date for the Anthropocene, the beginning of the Great Acceleration is by far the most convincing from an Earth System science perspective.



## 31. China makes world's first methane powered Rocket

Maker: LandSpace

Name: Zhaque 2

Fuel: Liquid oxygen methane

Benefits:

- Methane-powered engines – with their high performance and low operational costs – are particularly suited for the developing trend of reusable rockets
- High combustion efficiency, environmental friendliness, low cost, and easy production are some of the advantages of Natural Gas
- Although methane's density is about 20 per cent less than kerosene, it offers a slightly higher theoretical specific impulse – the impulse produced per unit of propellant, depending on engine design.



- Methane also outperforms in engine maintenance. Liquid oxygen kerosene rockets require thorough engine cleaning after each use. In contrast, the high volatility of methane significantly lightens the post-recovery cleaning workload.
- Most carbon-based fuels will leave deposits on the engine during use, but using methane overcomes this problem, prolonging the engine's life and making it more environmentally friendly to use.
- In terms of fuel tank design, the developers have been able to reduce the overall weight of the methane-fuelled rocket and enhance its payload capacity. This is because methane and liquid oxygen have similar boiling points and can be stored near each other against the same bulkhead, unlike tanks of liquid oxygen and hydrogen which must be stored in separate cabins.

## 32. 122 million people pushed to hunger since 2019: UNO

According to the latest State of Food Security and Nutrition in the World (SOFI) report published jointly by five United Nations specialized agencies, over 122 million more people are facing hunger in the world since 2019 due to the pandemic and repeated weather shocks and conflicts, including the war in Ukraine

This is a significant increase from 613 million people in 2019 to around 735 million people currently facing hunger.

The report warns that if trends remain as they are, the Sustainable Development Goal of ending hunger by 2030 will not be reached

### Supplementary Concept:

1. Sustainable Development Goals

## 33. Aspartame is a possible carcinogen: WHO

The World Health Organization (WHO) has classified aspartame as a possible carcinogen.

However, the designation is based on limited evidence and more research is needed.

The WHO said aspartame is safe to consume within a daily limit of **40 milligrams** per kilogram of a person's body weight.

## 34. Global alert to combat severe dust storms by UNO

**Definition:** Severe sand and dust storms (SDS) are defined as storms caused by intense winds over areas of arid soil that pick up large amounts of ground material in the



atmosphere. They are becoming increasingly common, with UN climate experts attributing the rise to human-driven causes such as climate change and unsustainable farming practices

**Measure:** To combat SDS, the UN has designated **12 July 2023** its **first-ever International Day of Combating Sand and Dust Storms**. Through educational and public awareness campaigns the UN is aiming to promote sustainable agricultural and land management strategies, increase food security, and help with the fight against climate change.

**SDS Coalition:** Has **19 Members** which include UN agencies and non-UN agencies: CBD, ESCAP, ESCWA, FAO, ICAO, ITU, IUCN, UNCCD, UNDESA, UNDP, UNDRR, UNECE, UNEP, UNFCCC, UN-Habitat, UNITAR, WHO, WMO, World Bank.

**Statistic:** Approximately two tonnes of sand and dust enter the atmosphere each year, according to the UN coalition to combat desertification. These particles can travel for hundreds and occasionally thousands of miles when carried by wind. Climate change-related issues have increased the frequency and intensity of SDS. In some regions, in fact, the number of sand and dust particles in the atmosphere had doubled between 1900 and 2000

## 35. One year of Black Sea Initiative brokered by UNO

The Black Sea Initiative agreed by Russia, Türkiye, and Ukraine aims to allow grain and other foodstuffs to leave Ukraine's ports during the course of the Russia-Ukraine War, to ensure global food security,

The initiative has been run by the Joint Coordination Centre (JCC) in Istanbul, staffed by Russia, Türkiye, Ukraine, and the UN.

The Initiative has allowed the World Food Programme (WFP) to transport more than 725,000 tonnes of wheat to help people in need in Afghanistan, Ethiopia, Kenya, Somalia, Sudan, and Yemen. Ukraine supplied more than half of WFP's wheat grain in 2022, as was the case in 2021

The Black Sea Initiative's initial duration was for 120 days starting on 22 July 2022. It was renewed by all parties on 18 November for another 120 days.

On 17 March, all parties agreed to its renewal, but Russia only agreed to a 60-day extension pending review. On 18 May, Russia confirmed its participation in the deal for another 60 days. As a result, the agreement is now set for renewal on 17 July.

The Black Sea Initiative does not address exports from ports in Russia.

## 36. Namda Craft of Kashmir

Namdass are woolen felt rugs that are made by layering and and compressing wool fibers.



In November 2021, Union Minister of State Rajeev Chandrasekhar, launched two pilot projects to revive and promote traditional 'Namda' craft in Jammu and Kashmir. Efforts are afoot to increase the carpet export from ₹600 crore to ₹6,000 crore. It has so far certified 2,212 Namda craft-makers across six clusters -- Srinagar, Baramulla, Ganderbal, Bandipora, Budgam and Anantnag.

The department of handicrafts has taken some measures to revive the craft. Namda-making units are now part of the map of the Crafts Safari. The 'Crafts Safari' - a unique initiative -- was started by the handicrafts department after Srinagar made it to the UNESCO list in the Crafts and Folk Arts category

## 37. Nomadic Elephant exercise between India and Mongolia 2023

Army exercise

The aim of this exercise is to build positive military relations, exchange best practices, develop inter-operability, bonhomie, camaraderie and friendship between the two armies. The primary theme of the exercise will focus on counter-terrorism operations in mountainous terrain under United Nations mandate.

The scope of this exercise involves Platoon level Field Training Exercise (FTX). During the exercise, Indian and Mongolian troops will engage in various training activities designed to enhance their skills and capabilities. These activities include endurance training, reflex firing, room intervention, small team tactics and rock craft training. Soldiers from both sides will learn from each other's operational experience.

## 38. Horizon 2047

Vision document of India and France on their relationship. It has 63 specific outcomes that are divided among multiple partners.

Major points include:

1. Defence cooperation
2. Defence Partnership
3. People to People Ties
4. Science, technology and academic cooperation
5. Fight against terrorism
6. Renewed and Effective multilateralism

## 39. AI for India 2.0

It is a free online training programme on Artificial Intelligence in 9 Indian languages.





## 40. TRISHNA Earth Observation mission

### Who?

ISRO, India and CNES, France

### What?

Space Based Thermal imaging satellite. It observes vegetation zones and soil temperatures

### When?

2024

### Why?

To understand the local evolution of biological, physical and climatic phenomena related to water cycle.

### How?

Collect thermal images with a resolution of 57 meters (current best 100 meters) at a 3 day frequency (current best monthly)

### Supplementary facts:

1. Disha mission – on earth's aeronomy
2. Shukrayaan – ISRO's venus mission

## 41. City Investments to Innovate, integrate and Sustain (CITIIS 2.0)

### Who?

Ministry of Housing and Urban Affairs, France and EU

### When?

4 years from 2023 to 2027

### Why?

Support projects that promotes circular economy and integrated city waste management. Support climate oriented reform action at state level and institutional strengthening and knowledge dissemination at the national level.

### Where?

It has 3 components:

1. Project on climate resilience in 18 smart cities
2. Climate centres at state level, city level data observatories and data driven planning
3. Interventions at all 3 levels – Centre, State, City to further climate governance.



**How?**

Loan of 100 million euro each from France and EU and 12 million euro grant from EU

## 42. Mission Organic Value Chain Development for NE Region

**Aim:** Growing and Value adding traditional crops, Cultivation of high value crop under contract farming models

**Target:** additional 1 lakh ha over and above the currently achieved 74880 ha, under 200 new FPOs.

**Working:** End to end support to farmers from farm to fork. FPO will get access to shared infrastructure like collection and processing centres

## 43. Export preparedness Index report by Niti Ayog 2022

**Motive:** Provide overview of Sector specific export performance; Make district level analysis of merchandise exports

**Means:** Assess across 4 pillars: Policy, Business ecosystem, Export ecosystem, Export performance

## 44. SAGAR SAMPARK differential global navigation system

**Make:** India

**Work:** Correct errors of Global Navigation Satellite Systems from 5 to 10 meters to below 5 meters within 100 nautical miles from Indian coastline.

**Position:** 6 locations

**Significance:** Safe navigation in national waters, reduce risk of collisions and accidents, fulfill obligations of IMO, SOLAS and IALA

**Supplementary Concepts:**

1. Global Navigation Satellite Systems – GPS, GLONASS, Beidou, Navic
2. IMO
3. Safety of life at sea
4. International Association of Marine Aids to Navigation and Lighthouse Authorities

## 45. IEA launches Oil 2023 medium term market report. Contains analysis and forecast to 2028



**Released by:** The International Energy Agency (IEA) in collaboration with Petroleum Planning and Analysis Cell (PPAC) under the aegis of MoP&NG

**Findings:**

1. Growth of global oil demand is set to slow down, almost coming to a halt by 2028. This is due to hastened shift towards cleaner energy technologies for energy security concerns.
2. Despite robust demand from the petchem and aviation, annual demand growth is expected to decline from 2.4 mb/d in 2023 to just 0.4 mb/d in 2028, putting a peak in demand in sight.
3. In particular, the use of oil for transport is set to decline after 2026 as the expansion of electric vehicles, the growth of biofuels and improving fuel economy reduce consumption.
4. However, some economies, notably China and India, will continue to register growth throughout the forecast.
5. Alternate clean fuels like biofuels are expected to provide 10% of new liquid fuel supply growth to 2028. As per the report, biofuels production expands nearly 600 kb/d from 2022 to 2028, with Brazil, Indonesia and India combined accounting for 70% of this increase.
6. IEA report has assessed that global upstream investments in oil and gas exploration, extraction and production are on course to reach their highest levels since 2015, growing 11% year-on-year to USD 528 billion in 2023.
7. Oil producing countries outside the OPEC+ alliance dominate plans for increasing global supply capacity in the medium term, with an expected rise of 5.1 mb/d by 2028 led by the United States, Brazil and Guyana.
8. Saudi Arabia, the United Arab Emirates and Iraq lead the plans for capacity building within OPEC+.
9. IEA has felt that this level of investment, if sustained, would be adequate to meet forecast demand in the period covered by the report. However, it exceeds the amount that would be needed in a world that gets on track for net zero emissions.

## 46. Bhoomi Samman Award 2023

The awards are presented to State Secretaries and District Collectors along with their teams who have excelled in achieving saturation of the core components of Digital India Land Records Modernization Programme (DILRMP).

### Digital India Land Information Management System

Under the Digital India Land Information Management System, a Unique Land Parcel Identification Number is being provided which could be useful like Aadhaar Card. This



number would help in making proper use of the lands as well as forming and implementing new welfare schemes.

Linking of E-Courts with land records and registration data-base would have many benefits. The transparency that is coming from digitization would curb unethical and illegal activities related to land. It would help in resolving disputes related to ownership and use of land.

## 47. UPU establishes regional office in India

### Mission:

1. The Regional Office of UPU in India will serve as a vital platform for exchanging ideas, experiences and expertise, thereby accelerating the modernisation and transformation of the postal sector.
2. It will act as a hub for promoting collaboration among UPU member countries in the Asia Pacific region, encouraging innovation and facilitating knowledge sharing to enhance postal services.
3. It will also create opportunities for joint initiatives and capacity building programmes that will enhance the quality of postal services, cross-border e-commerce and contribute to economic development and social well-being.

### India's contribution:

India also announced contribution of USD 2,00,000 over a period of four years towards the UPU's Development and Technical Assistance activities through Asia Pacific Postal Union. This financial contribution aims to support capacity building, infrastructure development, and other essential activities to strengthen the postal sector in the region.

## 48. Steel Slag road technology

A method of road construction using steel slag and no natural ballast. About 200 kg of steel slag is generated in one tonne of steel production

The technology has been developed by the **Central Road Research Institute** under a research project in collaboration with the Ministry of Steel, Government of India and four major steel manufacturing companies of the country, viz.,

1. ArcelorMittal Nippon Steel,
2. JSW Steel,
3. Tata Steel and
4. Rashtriya Ispat Nigam.

This technology facilitates the **large-scale utilization of waste steel slag** of steel plants and has proved very useful in **effective disposal** of about **19 million tonnes** of steel slag generated in the country. This technique has been successfully tested in road construction





in four major states of the country including **Gujarat, Jharkhand, Maharashtra and Arunachal Pradesh.**

## 49. Tech transfer arrangement for scaling up indigenous knowledge

The National Innovation Foundation (NIF) – India, an autonomous body of the Department of Science and Technology (DST), Government of India has recently entered into a Technology Transfer arrangement for two indigenous technologies with Indian Genomix, a Hyderabad-based company which has W.H.O.G.M.P. certification ensuring quality assurance for medicinal products

1. **Mastitis** is an ailment causing huge losses to dairy farmers. The ailment is primarily caused by bacteria which need to be diagnosed and treated at the earliest. Indian farming system faces challenges in early diagnosis, availability of onsite treatment, and drug resistance. Further, lack of effective technology in field situation calls for alternative technologies. This indigenous herbal formulation was found to control major causative bacterial organisms like *Staphylococcus aureus*, *Pseudomonas aeruginosa*. This herbal formulation has multiple phyto-constituents which produce effective results against field bacterial strains. The unique formulation of the Knowledge holders was evaluated for its efficacy in clinical bacterial mastitis among dairy animals
2. In Broiler industry, birds are fed with nutrients for meeting enhanced metabolic rates thereby optimum growth performance in less period of time. This causes huge stress on metabolism of broilers and they need supplements to minimize health risks and enhance **feed conversion ratio**. A study conducted by NIF found that an outstanding indigenous herbal supplement had a positive influence on growth performance of broiler chicks. The supplementation indicated better nutrient absorption properties (had resulted in higher villi: crypt ratio). This had enabled broiler with improved feed efficiency and resulted in higher body weight gain.

## 50. Ancient Stitched shipbuilding method - Tankai method

The ships are constructed by stitching wooden planks together rather than using nails. It offered flexibility and durability, making the ships less susceptible to damage from shoals and sandbars. Although the arrival of European ships led to a shift in shipbuilding techniques, the art of stitching ships has survived in a few coastal regions of India, primarily for small local fishing boats.

Ministry of culture and India navy has entered a MOU to revive this art.

## 51. Techno-Commercial Readiness and Market Maturity Matrix (TCRM Matrix) Framework



**Launched by:** NITI Aayog

**Aim:** to Drive Innovation and Entrepreneurship in India

**About:** It is a pioneering assessment tool designed to revolutionize technology evaluation, foster innovation, and fuel entrepreneurship in India

## 52. Solar Radiation Modification by USA

The White House Office of Science and Technology Policy is coordinating a five-year research plan to study ways of modifying the amount of sunlight that reaches the Earth in order to temporarily temper the effects of global warming.

There are several kinds of sunlight-reflection technology being considered, including **stratospheric aerosol injection, marine cloud brightening and cirrus cloud thinning.**

- Stratospheric aerosol injection involves spraying an aerosol like sulfur dioxide into the stratosphere, and because it has the potential to affect the entire globe, often gets the most attention.
- Marine cloud brightening involves increasing the reflectivity of clouds that are relatively close to the surface of the ocean with techniques like spraying sea salt crystals into the air. Marine cloud brightening generally gets less attention than stratospheric aerosol injection because it affects a half dozen to a few dozen miles and would potentially only last hours to days
- Cirrus cloud thinning, the third category addressed in the 2021 report from the National Academies, involves thinning mid-level clouds, between 3.7 and 8.1 miles high, to allow heat to escape from the Earth's surface. It is not technically part of the "solar geoengineering" umbrella category because it does not involve reflecting sunlight, but instead involves increasing the release of thermal radiation.

## 53. Taiwan expands diplomatic presence in India

The ROC (Taiwan) government will establish the Taipei Economic and Cultural Center (TECC) in Mumbai in order to further deepen exchanges and cooperation between the two countries.

Taiwan already has TECC in Chennai and Delhi

Under Taiwan's New Southbound Policy, TECC will also promote exchanges and cooperation in science and technology, education, culture, and people-to-people ties between Taiwan and India

### India-Taiwan relations

1. Bilateral trade has witnessed a nearly six-fold increase, growing from \$1.19 billion in 2001 to almost \$7.7 billion in 2021
2. India hasn't recognized Taiwan as an independent country till present.



## 54. SCO meet 2023, New Delhi – Major Decisions

1. **New Delhi Declaration:** SCO calls for inclusive government in Afghanistan
2. Two SCO **joint statement**
  - a. Cooperation in countering radicalization
  - b. Cooperation in field of digital transformation
3. India opposes BRI

## 55. India boosts economic diplomacy with Africa

India has increased its credit flow to Africa, becoming the second-largest provider of credit to the continent.

### India-Africa relations

1. Over the past decade, India has extended about **\$12 billion in credit to 42 African nations. the EXIM bank serves as a tool for India's "economic diplomacy."**
2. India has established **195 project-based lines of credit** throughout Africa, a number three times higher than the ones it has implemented in its own region over the past decade
3. Over the past nine years, India has established **18 out of 25 new embassies or consulates** in African countries.
4. India organized the **Voice of Global South summit**, where representatives from 48 African nations were hosted
5. India has utilized its **presidency of the Group of 20 nations** to highlight the debt challenges faced by developing economies

## 56. Futuristic upgrades for Supreme Court - e-initiatives

The recent upgrades include:

1. LED video wall for camera feeds and multimedia content
2. Wifi facility for lawyers
3. Sound reinforcement system to ensure optimal audio quality
4. Document camera to streamline the sharing of documents
5. Software for e-pass facility
6. Advocate appearance portal
7. Online RTI portal
8. E-office module in registry

## 57. Dark Patterns in Internet



Dark patterns are unethical tactics from companies to entice users to pay up for things, and services they would normally not have shelled out money for. Such tactics involve unethical user interface designs that may make your internet experience harder than it should be in order to even exploit you.

Tech firms often use deceptive tactics to make users accept, for example, certain terms and conditions or products and services. For this, tech firms or other companies may flood your inbox with promotional emails or tweak their websites or apps in a way that users may think acceptance or certain conditions is the only way forward. This may not always be the requirement but a user may be tricked into thinking as a result of the design of the website/app

#### **GOI Measures against Dark pattern:**

Governments and regulators are slowly turning their gaze to the dark patterns. India warned that online players will face action if they don't stop using dark patterns. Right now, dark patterns have been noticed as part of misleading advertisements

## **58. TRACK initiative of WHO**

TRACK" is a new digital learning series for capacity building and knowledge sharing on advanced HIV disease

#### **Advanced HIV Disease:**

AHD is a persistent challenge to HIV programmes in many countries worldwide, particularly in high HIV burden countries, and is an important cause of mortality among people living with HIV, responsible for approximately 650 000 deaths in 2021.

AHD is defined as people living with HIV with a CD4 cell count <200cells/mm<sup>3</sup>, as well as all children living with HIV below the age of 5 years. People with AHD have significantly higher rates of AIDS-related complications which includes tuberculosis, cryptococcal meningitis, histoplasmosis, and severe bacterial infections.

WHO currently recommends a package of care for the management of AHD which includes screening, diagnosis, prophylaxis, and enhanced adherence counselling for all individuals with AHD.

## **59. Infodemic Insights of WHO**

During epidemics the information environment may be filled with a lot of questions and concerns that are not easily addressed, this becomes a challenge with increased low quality health information and misinformation circulating. Such information has the potential to



spread at a fast rate both online and offline in communities impacting individuals' health decision making.

As a way of responding to these rising issues in infodemics and provide support to health workers in linking with the public, WHO and UNICEF, in collaboration with their networks and partners, have published an innovative manual and accompanying tools for analysts who conduct social listening to develop infodemic insights.

An infodemic is defined as an overabundance of information, accurate or not, in the digital and physical space accompanying an acute health event such as an outbreak or epidemic. Infodemic insights are developed through compilation of narratives (description of series of events) that are generated across various data sources, which are often captured through social listening.

The manual will be evidence-based and includes reproducible steps for integrating analysis across online and offline datasets to produce infodemic insights and recommendations for action to improve public health.

## **60. Developing countries face 2 trillion investment gap to energy transition**

The World Investment Report 2023 shows developing countries need renewable energy investments of about \$1.7 trillion annually but attracted only \$544 billion in 2022.

The report is released by UNCTAD

## **61. India condemns France president's soft approach to khalistan. France president had said- France won't encourage violence or terrorism but allow freedom of expression**

### **Khalistan origins post independence**

1920-47 - SAD puts forth demand for Khalistan

1947-66 - Punjab Suba Movement for Separate Country or Autonomous Province

1970 - Khalistan movement started in UK by Pamar and Jagjit Singh Chohan. Pakistan gave full support to the movement. It soon spread to USA. Khalistan embassies were opened in European countries

1972-81 - Anadpur Sahib Resolution demanding radical devolution





1982 - Dharam Yudh Morcha for larger share in water and return of Chandigarh

1983-84 - Kharku militants

1985 - International flight bombings by Pamar killing nationals of Canada, UK, India, Japan and Ireland

2015 - Sarbat Khalsa reaffirmed the demand for Khalistan

2022 - Amritpal Singh, a self styled radical preacher became prominent and was arrested that led to protests and attacks on Indian embassy

### Measures to quell Khalistan separatism

1. Formation of Punjab 1966
2. Sealing of Delhi-Punjab border to prevent mishap in Asian Games 1982
3. Imposition of emergency 1983
4. Operation Blue Star 1984
5. Rajiv-Longowal Accord 1985
6. Nasha Sochna Sachivalaya

### Measures that caused further resentment

1. Formation of Himachal Pradesh by territories that belonged to erstwhile Punjab 1966
2. Making Chandigarh as Union Territory 1966
3. Construction of Indira Gandhi Canal 1952
4. Recognising Sikhism as part of Hinduism 1950
5. Anti-Sikh Riots 1984

## 62. Resource Efficiency and Circular Economy Industry Coalition (RECEIC)

It is a coalition of companies formed during a G20 working group meeting in Chennai

RECEIC is an industry-driven initiative aimed at promoting resource efficiency and circular economy practices globally. As a collaborative platform, RECEIC aims to facilitate knowledge-sharing, best practice sharing, and sustainable practices among the participating industries. The coalition has **three guiding principles – Partnerships for impact, Technology Cooperation and Finance for scale.**

The coalition is envisioned to be a self-sustaining entity that will continue to operate beyond India's G20 Presidency, making a lasting impact on environmental sustainability.

39 companies headquartered in 11 different countries have joined the coalition as its founding members.



## 63. 17th Indian cooperative congress

**Starts on:** International Day of Cooperatives – July 1

**Theme:** Amrit Kaal: Prosperity through Cooperation for a Vibrant India

**Objective:** to discuss various trends in cooperative movement, showcase best practices being adopted, deliberate challenges being faced and chalk out future policy direction for growth of India's cooperative movement

## 64. Ex situ management of crop residue in Punjab, Haryana, UP and Delhi

**News:** Crop Residue Management guidelines

**Revision:**

### 1. Project

- Techno-commercial pilot projects for Paddy Straw Supply Chain will be established under the bilateral agreement between the Beneficiary/Aggregator (Farmers, rural entrepreneurs, Cooperative Societies of Farmers, Farmers Producer Organizations (FPOs) and Panchayats) and Industries utilizing the paddy straw.

### 2. Funding

- Government shall provide financial assistance on the capital cost of machinery and equipment. The required working capital may be financed either by the Industry and Beneficiary jointly or utilizing the Agriculture Infrastructure Fund (AIF), NABARD Financial or Financing from the Financial Institutions by the beneficiary. Project proposal based financial assistance will be extended for machines and equipments such as Higher HP Tractor, Cutters, Tedder, Medium to Large Balers, Rakers, Loaders, Grabbers and Telehandlers which are essentially required for establishment of paddy straw supply chain
- Government (jointly by Central and State Governments) will provide financial support of @ 65% of the project cost, Industry as primary promoter of the project will contribute 25% and will act as the Primary consumer of the feedstock collected and Farmer or group of Farmers or Rural Entrepreneurs or Cooperative Societies of Farmers or Farmers Producer Organizations (FPOs), or Panchayats will be the direct Beneficiary of the project and will contribute the balance 10%.

### 3. Miscellaneous

- The land for storage of the collected paddy straw will be arranged and prepared by the beneficiary as may be guided by the end use industry



- State Governments shall approve these projects through project sanctioning committee

**Significance:**

1. The initiative will supplement the efforts of paddy straw management through in-situ options
2. During the three-year tenure of the interventions, 1.5 million metric tonnes of surplus paddy straw are expected to be collected which would otherwise have been burnt in fields.
3. About 333 biomass collection depots of capacity 4500 MT will be built in the States of Punjab, Haryana, Uttar Pradesh and Madhya Pradesh.
4. Air pollution caused by stubble burning will be considerably reduced.
5. It would generate employment opportunities of about 9,00,000 man days.
6. The interventions will encourage a robust supply chain management of paddy straw which shall further help in making paddy straw available for various end uses i.e., power generation, heat generation, bio- CNG, etc. by Power/bio-CNG/bio-ethanol producers
7. Establishment of supply chain would result in new investments in Biomass to biofuel and energy sectors.

## 65. Scheme for fire services in States

**Origin:** The Fifteenth Finance Commission (XV-FC) recommended an allocation of 12.5 percent of each of the National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) [10% of the total corpus of the National Disaster Risk Management Fund (NDRMF) and the State Disaster Risk Management Fund (SDRMF)] for the Funding Window of Preparedness and Capacity Building

**Objective:** To expand and modernize Fire Services in the States with a view that activities for strengthening of fire services at the State-level through preparedness and capacity-building component of the NDRF will be ensured.

**Outlay:** ₹5000 Crore from the earmarked allocation of Preparedness and Capacity Building Funding Window under the National Disaster Response Fund (NDRF). For seeking funds for the projects/proposals under the Scheme, the concerned State Governments shall have to contribute 25% (except for the North-Eastern and Himalayan (NEH) States which shall contribute 10%) of total cost of such projects / proposals from their budgetary resources

## 66. India - Africa international millet conference

**Place:** Kenya

**Partners:** India, Kenya, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)



**Aim:** To raise public awareness about millets as the 'world's emerging smart food'. Additionally, the global event would also help highlight the South-South exchange and collaboration opportunities within the realm of millets.

## 67. Fit for life alliance by UNESCO

1. Fit for Life is UNESCO's new sport-based flagship initiative, designed to activate smart investments in sport to tackle rising physical inactivity, mental health issues, social exclusion, and inequalities.
2. The initiative aims to ensure sports are effectively used as a solution for 'building back better'.
3. The Flagship activities connect international, regional and national stakeholders to accelerate COVID-19 recovery and enhance the wellbeing of all people, beginning with youth

## 68. International Conference on green hydrogen, Delhi 2023

**Organizers:** Ministry of New and Renewable Energy, in partnership with the Ministry of Petroleum and Natural Gas, Council of Scientific and Industrial Research and Office of Principal Scientific Advisor to Government of India

**Objective:** To explore how we can establish a Green Hydrogen ecosystem and foster a systemic approach for meeting the global goals for decarbonization through Green Hydrogen. Apart from domain-specific research interactions on hydrogen production, storage, distribution and downstream applications, the conference will also discuss green financing, human resource upskilling and startup initiatives in this area. The conference will enable to share and learn from international best practices in the sector.

**Supplementary Read:**

1. Incentive schemes for Electrolyzer manufacturing
2. Green Hydrogen Hubs
3. National Green Hydrogen Mission

## 69. Zhurong Mars rover and Tianwen 1 orbiter of China infers change in martian climate 4 lakh ago

**Experiment:** Observation of large sand dunes. The crescent shape of the dunes has been eroded over hundreds of thousand years, with long dark ridges, called **transverse aeolian ridges (TARs)**, forming on top of the dune fields, but apparently at a different angle than that of the wind-blown dunes. Zhurong's investigation of the dunes found that their



crescent-shaped bodies are made of brighter material underneath the **darker material that forms the TARs**

**Reason:** TARs have been observed all across Mars at lower mid-latitudes, but global atmospheric circulation models that describe the direction of the winds on the Red Planet have been unable to explain how the features could have formed — until now

**Result:** From orbit, Tianwen-1 observed 2,262 bright dunes across Mars, and based on the number of craters that have impacted on top of the dunes, the research team estimates that they formed between 2.1 million and 400,000 years ago. That means the dark TARs must have formed on top of them within the past 400,000 years.

These **dates coincide with the start and end of Mars' last major ice age**. For the TARs to have formed at a different angle to the dunes implies that the wind direction in the lower mid-latitudes must have changed with the end of the ice age.

The ice age began and ended because of changes in the angle at which Mars spins, brought about by **Milankovitch cycles**.

**Supplementary Concept:**

1. Milankovitch Cycles

## 70. Global biofuel alliance

**Founders:** India, Brazil, USA

**Aim:**

1. Facilitating cooperation and intensifying the use of sustainable biofuels, including in the transportation sector.
2. It will place emphasis on strengthening markets, facilitating global biofuels trade, development of concrete policy lesson-sharing and provision of technical support for national biofuels programs worldwide.
3. It will also emphasize the already implemented best practices and success cases.

## 71. 30 critical minerals list published

**Why Critical?**

Economic importance + Supply Risk = Criticality of Minerals

**How India Chose 30 minerals?**

3 stages:

1. Review of critical mineral strategies of other countries
2. Inter-ministerial consultation
3. Criticality evaluated with help from IEA





**What elements are chosen as critical minerals?**

S. No.	Critical mineral	Major Applications
1	Antimony	Flame retardants, lead-acid batteries, lead alloys, plastics (catalysts and stabilizers), glass, and ceramics
2	Beryllium	Automotive components: transport and defense manufacturing of machinery, electronic, and telecommunications equipment
3	Bismuth	Chemicals, pharmaceuticals, casting of iron
4	Cadmium	Batteries, pigments, and coatings
5	Cobalt	Electric vehicles (EVs), batteries, corrosion-resistant alloys, aerospace applications, pigments, and dyes
6	Copper	Electrical and electronics products, electrical wiring, solar panels, automotive industry
7	Gallium	Semiconductors, integrated circuits, and LEDs
8	Germanium	Optical fibers, satellites, and solar cells
9	Graphite	Batteries, lubricants, EVs, and fuel cells for EVs
10	Hafnium	Superalloys, catalyst precursors, semiconductors, oxides for optical, and nuclear reactors
11	Indium	Electronics (laptops, LED monitors/TVs, smartphones), and semi-conductors
12	Lithium	Electric vehicles, batteries, glassware, ceramics, fuel manufacturing, lubricant
13	Molybdenum	Steel alloys, pigments and dyes, catalysts, electrical, and electronic
14	Niobium	Construction, transportation
15	Nickel	Stainless steel, solar panels, batteries, aerospace, defense applications, and electric vehicles
16	PGE	Auto catalysts, jewelry, medicine, and electronic equipment used by the military
17	Phosphorous	Mineral fertilizer
18	Potash	Chemical fertilizers and water softeners
19	REE	Permanent magnets for electricity generators and motors, catalysts, polishing, batteries, electronics, defense technologies, the wind energy sector, aviation, and space
20	Rhenium	Super-alloys, aerospace and machinery uses, catalysts in the petroleum industry
21	Selenium	Electrolytic, manganese, glass, and pigments
22	Silicon	Semiconductors, electronics, transport equipment, paints, and aluminum alloys
23	Strontium	Alloys of aluminum, pigments and fillers, glass, magnets, and



		pyrotechnic applications
24	Tantalum	Capacitors, superalloys, carbides, medical technology
25	Tellurium	Solar power, thermoelectric devices, rubber vulcanizing
26	Tin	Aerospace, construction, home decor, electronics, jewelry, and telecommunications
27	Titanium	Aerospace and defense applications, chemicals and petrochemicals, pigments, and polymers
28	Tungsten	Mill and cutting tools, mining and construction tools, catalysts and pigments, aeronautics and energy uses, tungsten carbide
29	Vanadium	Alloys, batteries
30	Zircon	high-value chemical manufacturing and electronics sectors

### Why India needs Critical Minerals?

1. Mitigate Supply chain disruptions
2. Advancing self reliance efforts
3. Framework for policy formulation
4. Promoting cleaner technologies

### Supplementary concepts:

1. KABIL
2. India-Australia Critical Mineral Partnership
3. Mineral Security Partnership
4. Critical mineral policy

## 72. PM DevINE scheme

**Name:** Prime Minister Development Initiative for North East Region

**Type:** Central Sector Scheme (i.e, completely funded by Central Government)

**Outlay:** ₹6,600 crores for 4 years from 2022-23 to 2025-26

**Aim:**

1. Fund infrastructure convergently, in the spirit of PM GatiShakti;
2. Support social development projects based on felt needs of the NER;
3. Enable livelihood activities for youth and women;
4. Fill the development gaps in various sectors

## 73. New emission fighting strategy of Global Shipping

**Vision:** IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible, while promoting, in the context of this Strategy, a just and equitable transition.

**Ambition:**



1. Carbon intensity of the ship to decline through further improvement of the energy efficiency for new ships
2. To reduce CO2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, compared to 2008
3. Uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5%, striving for 10%, of the energy used by international shipping by 2030;
4. To peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out

#### Indicative checkpoints

1. To reduce the total annual GHG emissions from international shipping by at least **20%, striving for 30%, by 2030**, compared to 2008.
2. To reduce the total annual GHG emissions from international shipping by at least **70%, striving for 80%, by 2040**, compared to 2008.

## 74. Jan vishwas amendment of provisions bill 2023

**Aim:** Decriminalize around 180 offences across 42 acts governing environment, agriculture, media, industry, travel, publication and other domains to promote ease of doing business.

#### Broad changes:

1. Decriminalizing of offences. All offences under Indian post office act 1898 is removed
2. Changed in grievance redressal mechanisms
3. Periodic revision of fines. A minimum 10% increase every 3 years.

#### Concerns:

1. Technical competence of adjudicating authorities to decide on penalties may be inadequate.
2. May allow drug makers to get off lightly on charges of making substandard medicine. The health ministry, in a clarification issued on Friday, said the amendment does not decriminalise or reduce the sentence under Section 27 (d) of Drugs and Cosmetics Act, it allows for an alternate mechanism of compounding. The ministry said compounding will be allowed only for drugs that have not failed parameters considered being injurious to health, that do not contain toxic substances, that do not contain substance which reduce quality or strength of a drug, that haven't been manufactured in unsanitary conditions, that haven't been manufactured without a licence, and that do not have any misleading labels. However, activists have said that drugs not of standard quality as listed in Section 27 (d) are not really as safe and may still lead to bodily harm.

## 75. New policy paper against online hate by UNO

Key Recommendations:



- The need to ensure respect for human rights and the rule of law when countering online hate speech, and apply these standards to content moderation, content curation and regulation.
- Enhancing transparency of content moderation, content curation and regulation.
- Promoting positive narratives to counter online hate speech, and foster user engagement and empowerment.
- Ensuring accountability, strengthen judicial mechanisms and enhance independent oversight mechanisms.
- Strengthening multilateral and multi-stakeholder cooperation.
- Advancing community-based voices and formulating context-sensitive and knowledge-based policymaking and good practice to protect and empower vulnerable groups and populations to counter online hate speech.

## 76. Toxic effects of Pesticides on pollinators can be countered by Omega 3

According to a new research, the use of an omega-3 rich oil called “**ahiflower oil**” can prevent damage to honey bee mitochondria caused by **neonicotinoid pesticides**. Pesticides are a major threat to insect populations and as insects are at the core of ecosystem richness and balance, any loss in insect biodiversity can lead to catastrophic outcome

## 77. Bamboo as a renewable energy source

Bamboo could be a sustainable, eco-friendly renewable energy source that could serve as an alternative to fossil fuels

**Sustainability:** Bamboo’s rapid growth, its proficiency in carbon dioxide absorption, and its ability to contribute substantial quantities of oxygen to the environment.

**Fuel:** Various processes—such as fermentation and pyrolysis—can be performed to convert its raw material into bioethanol, biogas, and other bioenergy products

## 78. Sickle cell anemia mission launched

Sickle cell disease (SCD) is a chronic single gene disorder causing a debilitating systemic syndrome characterized by chronic anemia, acute painful episodes, organ infarction and chronic organ damage and by a significant reduction in life expectancy.

**The Mission:**

- The National Sickle Cell Anaemia Elimination Program, introduced in the Union Budget 2023, focuses on addressing the significant health challenges posed by sickle cell disease, particularly among tribal populations of the country.



- Implemented in 17 high-focus states across the country, this program aims to improve the care and prospects of all sickle cell disease patients while reducing the prevalence of the disease. The 17 states are- Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, Jharkhand, Chhattisgarh, West Bengal, Odisha, Tamil Nadu, Telangana, Andhra Pradesh, Karnataka, Assam, Uttar Pradesh, Kerala, Bihar, and Uttarakhand.
- The program is executed in a mission mode as part of the National Health Mission (NHM), aims to eliminate sickle cell genetic transmission by the year 2047, showing a long-term commitment to eradicating the disease.
- Over a period of three years, spanning from the fiscal year 2023-24 to 2025-26, the program targets screening approximately 7.0 crore people. This ambitious goal highlights the program's dedication to reaching a large portion of the population, promoting early diagnosis and intervention.

## 79. Bharat 6G Alliance

**Objective:** To understand the business and societal needs of 6G beyond technology requirements, foster consensus on these needs, and promote high-impact open research and development (R&D) initiatives.

B6GA aims to bring together Indian startups, companies, and the manufacturing ecosystem to establish consortia that drive the design, development and deployment of 6G technologies in India. By accelerating standards-related patent creation within the country and actively contributing to international standardization organizations such as 3GPP and ITU, B6GA seeks to position India at the forefront of 6G innovation.

One of the key goals of B6GA is to facilitate market access for Indian telecom technology products and services, enabling the country to emerge as a global leader in 6G technology. To achieve this, These efforts shall promote technology ownership and indigenous manufacturing, create a culture of technology co-innovation, reduce imports, boost export opportunities and augment creation of Intellectual Property.

### Supplementary Concept:

1. Telecom Technology Development Fund (TTDF).

## 80. Online filing for Political parties launched by Election Commission

### Objectives:

1. To overcome difficulties in filing physical reports,
2. To ensure timely filing in a standardised format

These financial statements are required to be submitted by political parties to the Election Commission/Chief Electoral Officers of States/Union Territories, as per the Representation





of People's Act, 1951 & transparency guidelines issued by the Commission, from time to time, over the last many years

The parties who are not willing to file the reports through the portal and continue with the physical mode will have to give justification for the same.

## 81. Social trailblazer program for entrepreneurs

**Aim:** Social Trailblazer aims to support social enterprises working to solve the social problems of the country on the themes of Liveability and Livelihood.

**Program:** The support extended to the start-ups would include the technical and financial aspects in the form of grant up to 7.5 Lakh to the early-stage start-ups and equity funding up to 15 lakhs to the scaling up start-ups. The application would be called for two different criteria i.e., i) Early-Stage & ii) Scaling-up Stage

## 82. India objected to pakistan initiated arbitration proceeding in PCA on indus water use calling any parallel proceeding as illegal when a neutral party world bank treaty is there

**The Treaty:** Any dispute resolution proceedings on Indus river water and its tributaries must be done by a neutral expert constituted by the World Bank

**The Problem:** Pakistan objected to India's Kishenganga and Ratle HEP on Jhelum and Chenab rivers and sought resolution through Permanent Court of Arbitration. India requested a neutral expert in World Bank. The treaty does not allow parallel proceedings. Hence India contended that PCA is not competent to deal with the dispute.

**PCA's response:** the Court rejected each of the objections raised by India and determined that the Court is competent to consider and determine the disputes set forth in Pakistan's Request for Arbitration

### Supplementary Concepts:

1. Permanent Court of Arbitration, Hague
2. International Court of Justice, Hague
3. International Criminal Court, Hague



## 83. Japan and Gabon becomes 12th and 13th country to ratify WTO agreement on fisheries subsidies. India haven't ratified it yet.

### **The Agreement:**

Adopted by consensus at the WTO's 12th Ministerial Conference (MC12) held in Geneva on 12-17 June 2022, the Agreement on Fisheries Subsidies sets new binding, multilateral rules to curb harmful subsidies, which are a key factor in the widespread depletion of the world's fish stocks. In addition, the Agreement recognizes the needs of developing and least-developed countries (LDCs) and establishes a fund to provide technical assistance and capacity building to help them implement the obligations.

The Agreement prohibits support for illegal, unreported and unregulated (IUU) fishing, bans support for fishing overfished stocks, and ends subsidies for fishing on the unregulated high seas.

Acceptances from two-thirds of WTO members are needed for the Agreement to come into effect. At present, only 13 Countries and European Union have accepted the agreement.

## 84. Performance grading index 2.0 released

**Released by:** The Ministry of Education

**Objective:** PGI 2.0 aligns with the National Education Policy (NEP) 2020 and aims to improve education outcomes and identify areas for intervention. The release of PGI 2.0 demonstrates the efficacy of the system in assessing and improving the education system.

**Structure of PGI 2.0:** 73 indicators grouped into two categories: Outcomes and Governance Management.

**Ranking:** States/UTs are classified into ten grades, with Daksh being the highest achievable grade and Akanshi-3 being the lowest.

## 85. Internationalizing the rupee

1. RBI released the report of interdepartmental group on internationalization of Rupee
2. The report recognized that internationalization is an ongoing process. India is in early stage of it.
3. Chinese Yuan is studied in depth and reasons for its internationalization was
  - a. Its huge share in world trade
  - b. Sustained trade surplus
  - c. Inclusion in SDR, even though it is not fully convertible
4. For rupee to internationalize
  - a. It must be widely used to make payments for international transactions
  - b. It must be widely traded in the principal exchange markets



- c. Swap agreements
- d. Access to rupee liquidity for the partner countries
- e. Opening other revenues for investing rupee.
- f. Recalibrating FPI regime
- g. KYC norms harmonization
- h. Opening of offshore INR accounts for NRI
- i. Eliminating the constraints on domestic bonds being included in the global indices
- j. 24x5 global INR market
- k. Allowing domestic banks to access and sell deliverables on non deliverable forwards
- l. Allowing domestic users to access the FX market without having any underlying exposure
- m. Expanding INR based payment systems like UPI, NEFT, RTGS, etc
- n. Eliminating withholding taxes on Masala Bonds

## 86. PLI scheme for semiconductors

1. Foxconn-Vedanta JV broke with Foxconn pulling out of the deal
2. IGSS ventures wasn't able to show a proper technology licence for 28mm chips
3. ISMC, a JV between UAE Next Orbit Ventures and Israel's Tower semiconductor is in limbo after Intel took over Tower
4. At present, there is only one plan for Semiconductors from USA's Micron Technology.
5. Reason for dull start:
  - a. EU announced 43 Billion Euros subsidy to incentivize chip industry
  - b. USA announced 52 Billion Dollar subsidy
  - c. India announced 10 Billion Dollar subsidy

Obviously the global majors got attracted to EU and USA

## 87. Constituent Assembly debates on UCC

1. Tajamul Hussain - advocated strict separation of religion and state like present day France- ex. no person should have any visible religious signs or marks or dress whereby his religion is recognized. It was defeated.
2. KM Munshi - UCC is achievement of modernity
3. Alladi krishnaswamy Iyer - UCC brings uniformity. Quoted French and German constitution to say uniformity led to prosperity.
4. Though Amrit kaur and Hansa mehta supported UCC, women's question remained incidental in UCC



Those who feared UCC include-

1. Husain Imam of ML- Majority do not require safeguard, but minorities do. so interpreted UCC to be parallel to personal laws and voluntary
2. Nazirudin ahmed- Citizens must have freedom to practice personal laws as long as it did not affect FR of others

Ambedkar brought a "choice" element to UCC. In future, parliament must make effort for UCC and let its application be voluntary in initial stages to alleviate fears of minority

## 88. 9 Planetary Boundaries

1. Safe operating space for humanity
2. Biodiversity loss
3. Climate change
4. Land use change
5. Geochemical change
6. Freshwater use
7. Ocean acidification
8. Chemical pollution
9. Atmospheric loading and Ozone depletion

According to Global Outlook report, the first 4 have already been exceeded

Biodiversity loss: As per Living planet report of WWF, there has been a 69% decline in the wildlife population of mammals, birds, reptiles, amphibians, fish across the globe in the last 50 years. Mangroves are continued to be lost at a rate of 0.13% per year. 137 sq.km of Sunderbans have been lost since 1985

Main drivers of Biodiversity loss:

1. Habitat loss
2. Overexploitation of species
3. Introduction of Invasive alien species
4. Pollution

## 89. Interspecies Money

A new currency that would be held by animals. It tries to solve the poverty of animals. The money will be deposited in the bank for other species created by central banks. The money will be converted to cryptocurrency and given to accounts of digital clones of different species. This money will then be used by digital clones to employ humans to serve the



animals in reality. The animal can earn money by featuring in films and games for a fee, sell data about real time movement

## 90. All India Tiger Estimation 2022

The minimum tiger population estimated from the camera-trapped area was fixed at 3167. Now, further analysis of data, done by the Wildlife Institute of India, from both camera-trapped and non-camera-trapped tiger presence areas, the upper limit of the tiger population is estimated to be 3925 and the average number is 3682 tigers, reflecting a commendable annual growth rate of 6.1% per annum.

Central India and the Shivalik Hills and Gangetic Plains witnessed a notable increases in tiger population, particularly in the states of Madhya Pradesh, Uttarakhand, and Maharashtra.

However, certain regions, such as the Western Ghats, experienced localized declines, necessitating targeted monitoring and conservation efforts.

Some states, including Mizoram, Nagaland, Jharkhand, Goa, Chhattisgarh, and Arunachal Pradesh, have reported disquieting trends with small tiger populations.

The largest tiger population of 785 is in Madhya Pradesh, followed by Karnataka (563) & Uttarakhand (560), and Maharashtra (444).

The tiger abundance within the Tiger Reserve is highest in Corbett (260), followed by Bandipur (150), Nagarhole (141), Bandhavgarh (135), Dudhwa (135), Mudumalai(114), Kanha (105), Kaziranga (104), Sundarbans (100), Tadoba (97), Sathyamangalam (85), and Pench-MP (77).

Various tiger reserves have shown remarkable growth, while others face challenges. Approximately 35% of the tiger reserves urgently require enhanced protection measures, habitat restoration, ungulate augmentation, and subsequent tiger reintroduction.

### Supplementary Fact:

1. Global Tiger Day – July 29

## 91. Semicon India Future DESIGN DLI Scheme

The Design Linked Incentive (DLI) Scheme aims to offer financial incentives as well as design infrastructure support across various stages of development and deployment of semiconductor design(s) for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores and semiconductor linked design(s) over a period of 5 years.

### Objectives:

- Nurturing and facilitating the growth of the domestic companies, startups and MSMEs.
- Achieving significant indigenization in semiconductor content and IPs involved in the electronic products deployed in the country, thereby facilitating import substitution and value addition in electronics sector.





- Strengthening and facilitating access to semiconductor design infrastructure for the startups and MSMEs.

## 92. New Signages Guidelines

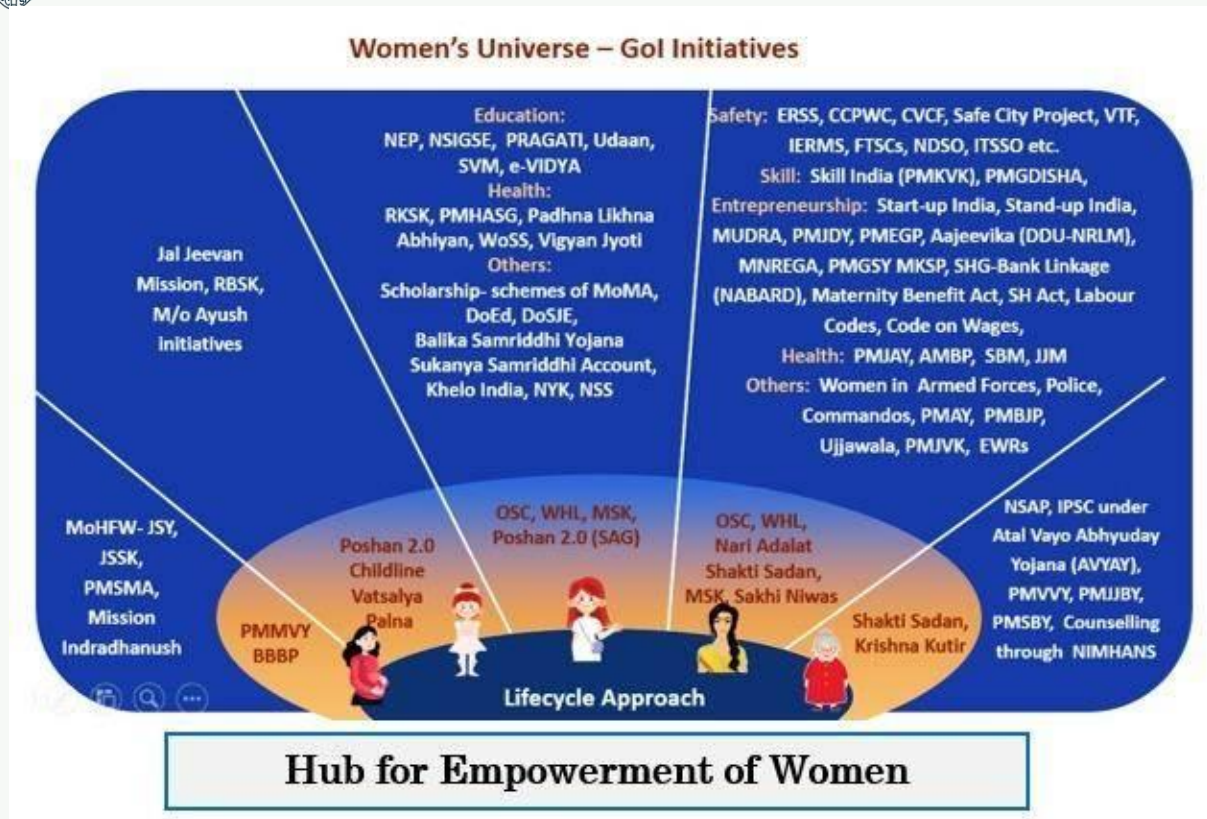
**Released by:** Ministry of Road Transport and Highways

**Salient features of the guidelines include:**

- **Enhanced Visibility and Legibility:** Prioritise enhanced visibility of road signages through placement at appropriate height/ distance, large lettering, symbols and short legends for quick comprehension of drivers, ensuring crucial information is readily visible and understandable, even in adverse conditions.
- **Pictorial Depictions for Intuitive Communication:** Pictorial representations along with text to convey essential messages effectively, thus catering to a diverse group of road users, including those with limited literacy.
- **Regional Languages:** Endorse a multilingual approach on road signages, encompassing both English and regional languages, ensuring effective communication with diverse road users, promoting better understanding and adherence to traffic regulations.
- **Focused Lane Discipline:** Special attention has been given to promoting better lane discipline, through strategic positioning with clear and intuitive guidance to drivers, encouraging adherence to designated lanes and minimizing traffic congestion.
- **Phased Implementation:** In the initial phase, the guidelines will be implemented on all upcoming Highways, Expressways, and greenfield corridors. Additionally, Highways experiencing high traffic volume, with more than 20,000 Passenger Car Units (PCUs), will also be prioritized for the implementation of these guidelines.

## 93. First Capacity Building Programme on ‘Mission Shakti- Hub for Empowerment of Women’ for State Nodal Officers and State Mission Coordinators

**Organized by:** National Institute of Public Cooperation and Child Development (NIPCCD) under Ministry of Women and Child Development



## 94. Nancy Grace Roman Space Telescope

**Belongs to:** NASA

**Launch date:** 2026-27

**Objective:** To spot 400 rogue planets which are likely to have mass similar to the Earth, to throw light on the evolution and disruption of planetary systems.

**Method employed:** Microlensing

**Significance:** This is the first measurement of the number of rogue planets in the galaxy that is sensitive to planets less massive than Earth.

**Supplementary Concept:**

1. Gravitational Lens

# MCC IAS ACADEMY



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## MISSION

To encourage the development of diligent, honest and discerning officials unwavering in their commitment to service, efficient in their administration and speaking truth to power



**COST  
AFFORDABLE**



**EXPERT  
FACULTY**



**PERSONAL  
MENTORING**



**HOSTEL  
FACILITIES**



EARLY  
BIRD  
PROGRAM



Your Bridge Course  
to UPSC preparation

Fee: Rs. 10,000  
(50% of market rate)

MARATHON  
PROGRAM



Full Course

Fee: Rs. 70,000  
(50% of market rate)

CATCH  
THEM  
YOUNG



Program for College  
students

Fee: Rs. 25,000

EYE  
OPENER  
PROGRAM



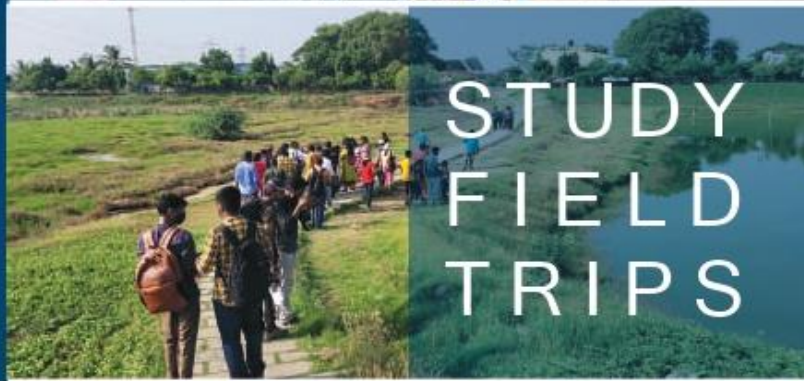
Program for  
Final Year Graduates

Fee: Rs. 10,000  
(50% of market rate)

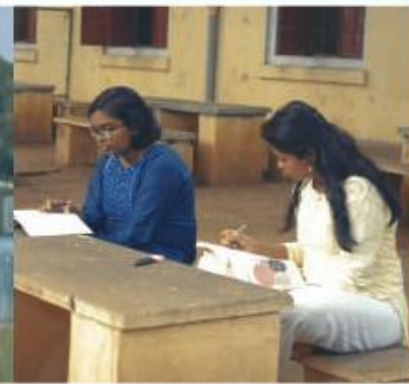
IAS  
PREP  
TALKS



STUDY  
FIELD  
TRIPS



AMBIENT  
STUDY  
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PERSONAL  
MENTORING



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