

National News

Indian Landslide Susceptibility Map

- **IIT-Delhi team** makes first hi-res landslide risk map for India
- The '**Indian Landslide Susceptibility Map**' is the first of its kind by virtue of being on a national scale in the country.
- The map and the researchers' study will be published in the **journal Catena in its February 2024 issue.**

Key points

- Landslides are a unique and deadly problem. They are less widespread and harder to track and study with satellites.
- Landslides happen in localised areas and affect only about **1-2% of the country.**
- The map acknowledged some well-known regions of high landslide susceptibility, like **parts of the foothills of the Himalaya, the Assam-Meghalaya region, and the Western Ghats.**
- It also revealed some previously unknown places with high risk, such as **some areas of the Eastern Ghats, just north of Andhra Pradesh and Odisha.**

Centre notifies revised rules for quality control of pharma products

- The Union Health Ministry notified revised rules under **Schedule M of the Drugs and Cosmetics Rules, 1945.**
- It aimed at ensuring robust quality control for pharma and biopharmaceutical products.

Key points

- Schedule M prescribes the **Good Manufacturing Practices (GMP)** for pharmaceutical products and the revised Schedule M has been notified as rules to ensure that GMP is adhered to and requirements of premises, plant, and equipment for pharmaceutical products are met.
- The GMP is the mandatory standard that builds and brings quality into a product by way of control of materials, methods, machines, processes, personnel, facility/environment and so on.

- **GMP was first incorporated in Schedule M of the Drugs and Cosmetics Rules, 1945 in 1988 and was last amended in June 2005.**
- With the amendment, the words '**Good Manufacturing Practices**' (GMP) have been replaced with '**Good Manufacturing Practices and Requirements of Premises, Plant and Equipment for Pharmaceutical Products**'.

DGCA revises duty norms for pilots

- The **Directorate General of Civil Aviation (DGCA)** has revised the norms regulating their duty hours by **reducing night-time flying and enhancing weekly rest.**
- This is being done following the concerns raised by pilots over mounting fatigue due to increased flying in a fast-growing domestic aviation market.

About Directorate General of Civil Aviation

- The DGCA is an attached office of the **Ministry of Civil Aviation, Government of India.**
- The DGCA is the **regulatory body in the field of Civil Aviation** and primarily deals with safety issues.
- The DGCA is responsible for regulating air transport services to/from/within India.
- The regulatory body is also **responsible for the enforcement of civil air regulations, air safety and airworthiness standards.**
- It also coordinates all regulatory functions with the **International Civil Aviation Organisation (ICAO).**

New hit-and-run law protests

- Transporters and commercial drivers from States like Maharashtra, Chhattisgarh, West Bengal, and Punjab have staged protests against the recent legislation concerning hit-and-run incidents.
- **Section 106 (2) of the Bharatiya Nyaya Sanhita, 2023 (BNS)** stipulates a penalty of up to 10 years in jail and a fine for fleeing an accident spot and failing to report the incident to a police officer or a magistrate.
- This law is in addition to the colonial-era provision on causing of death due to rash or negligent acts under **Section 304A of the Indian Penal Code, 1860.**

Think: Learn about the reasons and concerns of protests.

IIT Delhi team makes first hi-res landslide risk map for India

- Indian Institute of Technology Delhi (IIT Delhi) has made groundbreaking strides in disaster preparedness by crafting the first-ever high-resolution landslide susceptibility map for the entire country.
- This map, aptly named the 'Indian Landslide Susceptibility Map,' is a crucial tool for identifying areas prone to landslides, allowing for proactive mitigation strategies and saving lives.

I-STEM to launch Samavesha project at IISc Bengaluru

- I-STEM (Indian Science, Technology, and Engineering facilities Map) is launching the Samavesha project at IISc., Bengaluru to enhance research collaboration in India by enhancing accessibility to facilities and labs.
- The project targets connecting researchers with scientific institutes through an online portal.

MUMBAI TRANS HARBOUR LINK (MTHL)

The inauguration of the Mumbai Trans Harbour Link (MTHL), India's longest sea bridge, by the Prime Minister, marked a transformative phase for Mumbai's real estate sector.

Key Points:

Monumental Engineering Feat:

- Inaugurated on January 12, 2024, the MTHL is officially named **Shri Atal Bihari Vajpayee Trans Harbour Link (Atal Setu)**, also known as Sewri-Nhava Sheva Trans Harbour Link.
- This **21.8 km, 6-lane bridge** connects Mumbai with Navi Mumbai, spanning Thane Creek.
- Comprising a **16.5 km sea link and 5.5 km of viaducts on land**, it stands as India's longest sea bridge and the 12th longest globally.

Engineering Innovations:

- The bridge showcases the first use of orthotropic decks in India, allowing for longer spans and increased structural efficiency.
- Equipped with advanced traffic monitoring and surveillance systems, the MTHL prioritizes safety and security.

Maharashtra State News

Coastal road project

- The **first phase of the coastal road, from Worli to Marine Drive**, will be completed by January 31. It is likely to be toll free.
- The remaining part of the road will be opened by **May 2024**.
- Also, the **Mumbai Trans Harbour Link (MTHL) project** will be opened soon.
- The MTHL will be inaugurated by **PM Narendra Modi on January 12**.

Decrease in Nashik city road accident numbers in 2023

- Nashik, Maharashtra, has seen a **slight decline** in the number of road accidents in 2023 compared to the previous year.
- In 2023, Nashik city witnessed a **6% reduction in fatalities**.
- In 2023, there were **194 road accident deaths**, a decrease from 207 in 2022.
- Also, the **number of people injured in road accidents saw a 13% decrease**.
- It dipped from **540 in 2022 to 468 in 2023**.

Govt amends PM-eBus Sewa tender

- The **Union government** has recently amended the **PM-eBus Sewa scheme** launched in 2023 to include **100 low-floor buses** that are **more accessible to persons with disabilities** compared to the ones with standard floor.
- **Center amended a tender for the procurement of 3,600 electric buses** to address concerns raised by **disability rights activists** regarding the accessibility of the initially proposed standard-floor buses.

Think:

- Read about **PM-eBus Sewa**

Maharashtra govt donates Rs 11 Crore for Ayodhya Ram Mandir

- **MH govt has donated Rs 11 Cr** to the under construction **Ram Temple in Ayodhya, UP**

About:

- **Ram Mandir** is a grand Hindu temple dedicated to **Lord Rama**

- It is located at the disputed site of Ram Janmabhoomi, believed to be the birthplace of Lord Rama.
- The Temple will be inaugurated on January 22, 2024

7.95L prize money for Vid athletics

- Over 1,500 athletes from across Vidarbha will take part in the athletics competition in the sixth edition of Khasdar Krida Mahotsav (KKM)
- The event will begin at the synthetic track of Divisional Sports Complex in Mankapur from January 13.
- The four-day event will carry a prize money of 7.95 lakh and a total of 116 events in six age categories for men and women.

Pravasi Bharatiya Divas

- Pravasi Bharatiya Divas (Overseas Indian Day) is a national day in India celebrated on January 9th every year.
- It recognizes and celebrates the contributions of the Indian diaspora to the development of India and strengthens the bond between India and its overseas communities.
- The date commemorates the return of Mahatma Gandhi to India from South Africa in 1915.
- Gandhi, himself a member of the Indian diaspora, played a pivotal role in India's independence movement.

100 percent land acquired for Mumbai-Ahmedabad bullet train project

- National High Speed Rail Corporation Ltd (NHSRCL) has achieved 100 percent land acquisition for Mumbai-Ahmedabad bullet train project
- NHSRCL is the executing the Mumbai-Ahmedabad High Speed rail corridor,
- A total of 1389 hectares of land was required,
- It included 951.14 ha in Gujarat, 430.45 hectares in Maharashtra and 7.9 hectares in Dadra and Nagar Haveli.

White toxic foam in River Indrayani rankles Maharashtra

- The Indrayani River, a vital lifeline for Pune and surrounding areas, has been choked by a thick layer of white, toxic foam, sparking outrage and concern across Maharashtra.
- The frothy menace is attributed to industrial pollutants and untreated sewage
- It poses serious health risks to aquatic life and nearby communities.

Sources of the Foam:

1. Untreated industrial effluents
2. Domestic sewage
3. Use of detergents etc.,

Ambani, Jindal among those invited for 'Advantage Vidarbha'

- In a bid to showcase the potential of the Vidarbha region in Maharashtra, organizers of the "Advantage Vidarbha" event have extended invitations to prominent industrialists, including Mukesh Ambani (Chairman of Reliance Industries) and Sajjan Jindal (JSW Group Chairman).
- The event, scheduled for January 27-29, 2024, aims to attract investments and boost industrial development in the region.

World Hindi Day

- World Hindi Day, celebrated annually on January 10th, is a day to commemorate and promote the Hindi language on a global stage.
- It's an occasion to recognize the rich cultural heritage, literary depth, and growing influence of Hindi beyond its geographical borders.

Did you Know?

- Hindi, with over 600 million speakers worldwide, ranks as the third most spoken language globally.

MOIL to bring country's longest triathlon to city

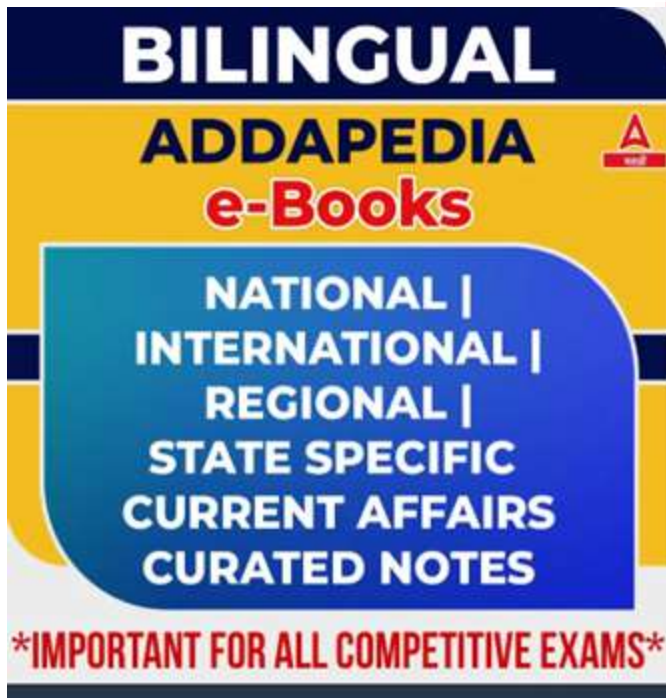
- The country's longest triathlon, TigerMan Triathlon, will be organized by Manganese Ore India Ltd (MOIL) Ltd in Nagpur on February 10 and 11.
- Amit Samarth, the finisher of Race Across America, is the race director of the two-day

event, presented by the largest manganese ore producer in the country, MOIL Limited, with an aim to foster health, sports and community empowerment.

- The competition will start with the participants swimming 5 kms in the Ambazari lake, before taking a 200km cycle ride and concluding with a 50km run.

Summer onion plantation area falls by 50% in Nashik

- The poor monsoon is affecting summer onion plantation in Nashik district.
- This year, summer onions have been planted on 81,000 hectares, compared to 2.2 lakh hectares last year.
- The low plantation will impact the availability of onions in the markets from April, leading to higher prices.



KMC converts roadside garbage dumping spot into public garden

- The Kolhapur Municipal Corporation (KMC) has converted a roadside garbage dumping and waste disposal site near the land records office in Mangalwar Peth into a garden.
- A tree plantation drive is also being carried out to give the surrounding area a new look.

- The road passing through the land records office is a bypass for motorists going towards the race course.

MH among top 3 States to contribute 40% of registered MSMEs in India

- As per a CBRE-CREDAI report, Maharashtra, Tamil Nadu, and Uttar Pradesh collectively contribute nearly 40 percent of all registered micro, small, and medium enterprises (MSMEs) in India
- According to government data, as of December 2023, there are over 3 crore MSMEs registered in the country

Maharashtra's Mahanand Dairy board passes resolution for takeover by NDDB

- The board of directors at Mahanand Dairy, a once-profitable venture under the Maharashtra government, has sanctioned a resolution to transfer the dairy's control to the National Dairy Development Board (NDDB).
- However, milk producers in the State are expressing concerns and alleging that the government and the board have decided to facilitate Amul's expansion in Maharashtra.

IAF to Organise Aerial Display in Mumbai from January 12 to 14

- The IAF will organize an aerial display in Mumbai as part of the Indian Air Force outreach programme in coordination with the Government of Maharashtra from January 12 to 14 between 12 pm to 1 pm over Marine Drive
- The displays and demonstrations by IAF personnel and aircraft will showcase the skills, capabilities and professionalism of the force.

VIIT bags top prize in poster presentation

- Vignan's Institute of Information Technology (Autonomous) (VIIT) campus bagged the first prize in poster presentation at Institution's Innovation Council (IIC) regional meet organized by the Ministry of Education (MoE).

- The main objective of the IICs is to show how MoE and All India Council for Technical Education support innovation and development in educational institutions.

National Youth Day

- National Youth Day, observed on January 12th in India, celebrates the vibrant energy and immense potential of the nation's young people.
- This day coincides with the birth anniversary of Swami Vivekananda, a renowned philosopher and spiritual leader whose teachings emphasized character building, social responsibility, and the power of the youth to shape the future.
- The day acknowledges the significant role young people play in driving social progress, innovation, and development.
- It serves as a platform to inspire young people to embrace their potential, engage in their communities, and strive for positive change.
- The theme for National Youth Day 2024 is "Arise, Awake, and Realize the Power You Hold."

PM Modi to inaugurate youth festival in Nashik

- Prime Minister Narendra Modi will inaugurate the Mumbai Trans-harbor link, connecting Mumbai International Airport and Navi Mumbai International Airport.
- It is now named 'Atal Bihari Vajpayee Sewari-Nhava Sheva Atal Setu'
- He will also launch various rail projects and the underground road tunnel in Mumbai.

Ports Minister optimistic about job surge with planned Wadhwan port

- Union Ports Minister Sarbanand Sonowal said that the proposed Wadhwan port near Dahanu will fuel substantial industrial growth in the region
- It will also create job opportunities for thousands of young individuals.

About:

- Wadhwan Port, also known as Vadhaven Port, is a proposed deep-sea port located on the coast of Maharashtra,

- It's envisioned as India's first foreshore port
- The project is a joint venture between Jawaharlal Nehru Port Trust (JNPT) and the Maharashtra Maritime Board

PM to launch projects worth Rs 30,500 crore in Maharashtra

- Prime Minister Narendra Modi would launch, commission and dedicate projects to the tune of Rs 30,500 crore in Maharashtra.
- He will also inaugurate, dedicate to the nation and lay the foundation stone of multiple development projects worth more than Rs 12,700 crore in the public programme in Navi Mumbai.
- He would lay the foundation stone of the underground road tunnel connecting Eastern Freeway's Orange Gate to Marine Drive.
- It will reduce travel time between Orange Gate and Marine Drive.

Jijabai Jayanti 2024

- The 426th birth anniversary of Rajmata Jijabai was celebrated with grand celebrations at the Rajwad (palace) of Raja Lakhhuji Rao Jadhav in Sindkhed Raja.
- She is the mother of the Maratha warrior king Chhatrapati Shivaji Maharaj.
- Descendants of the Jadhav clan from Sindkhed Raja and nearby villages, including Kinagaon Raja, Umerad, Deulgaon Raja, gathered at the palace to perform a grand puja (prayer ceremony) at the sacred site believed to be Jijabai's birthplace.

Navi Mumbai Airport to Open by Year-End

- Union Minister Jyotiraditya Scindia announced that the long-awaited Navi Mumbai international airport will begin operations by November or December this year.
- At least 10 Indian cities will have two airports each within the next 10 to 15 years.
- Navi Mumbai airport's opening marks the culmination of a 60-year wait for connecting Mumbai with its satellite city.

Chhatrapati Shivaji Maharaj Park Art Festival

- Mumbai's Chhatrapati Shivaji Maharaj Park Art Festival returned for its third edition.
- It offers a vibrant showcase of art forms and provides a platform for artists to connect with art lovers and potential buyers.

About:

- The Chhatrapati Shivaji Maharaj Park Art Festival is a four-day extravaganza.
- It honors the rich heritage and traditions of Maharashtra, fostering a sense of pride and belonging.

Atal Setu Bridge

- Prime Minister Narendra Modi inaugurated the Mumbai Trans Harbour Link (MTHL), known as Atal Setu, today, marking a historic moment in India's infrastructure development.
- It is dedicated to the memory of the late BJP veteran and former PM Atal Bihari Vajpayee.

Key Features:

- **Length and Lanes:** Atal Setu is a 6-lane bridge spanning 21.8 km, making it the longest sea bridge in India.
- **Geographic Extent:** Connecting Sewri in Mumbai to Nhava Sheva in Uran taluka, Raigad district, the bridge is expected to have a transformative impact on the region's economic development and connectivity.

Mumbai-Pune Expressway

- Road crash fatalities in Maharashtra saw a slight decrease in 2023

Key Points:

- Nearly 32% decrease can be seen in road fatalities
- The overall death toll dropped marginally from 15,224 in 2022 to 15,009 last year.

State News

Black fluid blankets Manipur rivulet, alert sounded

- The Manipur Government on January 11 sounded an alert after a gooey black fluid blanketed a rivulet on Jan 10 night.

About

- A thick, viscous black fluid has mysteriously covered a rivulet in Manipur, raising concerns about environmental contamination and potential health risks.
- The incident occurred near the Loktak Lake which is a Ramsar wetland of international importance.

International News

Carbon Border Adjustment Mechanism (CBAM)

- CBAM is part of the "Fit for 55 in 2030 package", which is the EU's plan to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels in line with the European Climate Law.
- The CBAM is a policy tool aimed at reducing Carbon Emissions by ensuring that imported goods are subject to the same carbon costs as products produced within the EU.

International Court of Justice(ICJ)

Israel faces Gaza 'genocide' case by S. Africa at International Court of Justice(ICJ).

About the International Court of Justice (ICJ):

- The ICJ, also known as the **World Court**, is the principal **judicial organ of the UN**.
- It was **established in June 1945** by the Charter of the United Nations and began work in April 1946.
- The seat of the Court is at the **Peace Palace in The Hague (Netherlands)**.
- Of the six principal organs of the United Nations, it is the only one not located in New York, United States.
- The hearings of the ICJ are always public.
- **French and English** are the official languages of the Court.

Rapid decline in India-Maldives ties

- Ties between India and the Maldives have witnessed a worrying downward spiral in recent months.
- This sudden shift, marked by diplomatic tensions and public animosity, raises concerns about the future of regional stability and cooperation.

Triggering factors:

1. Anti-India remarks by Maldivian officials
2. Change in Maldivian government.
3. Geopolitical influences

Red Sea trouble impact on India

- The **Red Sea**, a crucial artery for global trade, has become turbulent due to recent attacks by Yemeni rebels.
- This "trouble" has sent ripples through India's trade, impacting various sectors and raising concerns.

Impact:

1. Increased Shipping Costs
2. Disruptions in Trade Flows
3. Potential Price Hike
4. Impact on Crude Oil Imports.

Economy News

Direct tax collections cross 80% of 2023-24 target

- India's net direct tax collections have touched ₹14.7 lakh crore, meeting over four-fifths of this year's target and reflecting a growth of 19.4% over the same period of 2022-23.
- The provisional direct tax collections continue to register 'steady growth' with gross collections rising 16.77% to ₹17.18 lakh crore, led by a 26.11% rise in Personal Income Tax (PIT) inflows.
- Corporate Income Tax or CIT collections grew at a relatively muted pace of 8.32%.

EU's carbon border tax

- The EU's Carbon Border Adjustment Mechanism (CBAM), also known as the carbon border tax, is a policy that aims to level the playing field for European industries facing stricter carbon emission regulations compared to their non-EU counterparts.
- It essentially puts a price on the carbon emissions embedded in certain imported goods, such as cement, steel, aluminum, fertilizers, electricity, and hydrogen.

- The EU's ambitious goal is to achieve climate neutrality by 2050 requires significant reductions in greenhouse gas emissions.

Rupee falls 4 paise to 83.05 against U.S. dollar

- The Indian rupee has depreciated 4 paise to close at 83.05 against the US dollar.
- A key factor behind the rupee's decline is the renewed selling pressure from foreign investors.
- Concerns about rising global crude oil prices and potential interest rate hikes in the US prompted portfolio withdrawals, draining the Indian market and putting downward pressure on the rupee.

Defense News

Agnipath scheme could mean the end of Nepalese Gurkhas in Indian Army

- The Agnipath scheme, introduced by the Indian government in 2022, has sparked concerns about its potential impact on the long-standing tradition of Nepalese Gurkhas serving in the Indian Army.

About:

- Introduced in June 2022, it's a new recruitment policy for the Indian Armed Forces.
- Recruits soldiers for a short-term period of four years, with only 25% retained for longer service.

Ranks & Reports News

'World came close to the critical 1.5 degree Celsius limit in 2023'

- 2023 was a year of unprecedented heat, with the global average temperature hovering just shy of the critical 1.5°C threshold above pre-industrial levels.
- This proximity to the tipping point serves as a stark warning about the accelerating pace of climate change and the urgent need for drastic action

About:

- **2023 was officially declared the hottest year on record** by multiple agencies, surpassing even the scorching temperatures of 2016.

Nov. factory output growth drops to 8-month low of 2.4%

Context:

- India's industrial output growth experienced a significant decline, reaching an eight-month low of **2.4% in November**.
- This comes after a notable high of 11.6% recorded in October.
- The deceleration was particularly evident in manufacturing output, which expanded at the slowest pace in seven months, registering a mere 1.2%.

Key Points:

Contractions in Key Sectors:

- Consumer durables production witnessed a notable decline of **5.4%**, reaching its lowest level since June 2021, during the second wave of the COVID-19 pandemic.
- Electricity generation also decreased to its lowest level since February 2023, despite a 5.8% year-on-year increase, compared to a 20.4% uptick in October.
- Only six out of 23 manufacturing segments recorded growth in November.
- Notable increases were observed in **coke and refined petroleum products** (14.2%) and other transport equipment (9.8%).

Impact of Base Effects and Sequential Contractions:

- Base effects from **November 2022**, when the **Index of Industrial Production (IIP) rose by 7.6%**, played a role in moderating the growth rate.
- Sequential contractions in electricity and manufacturing further contributed to the overall decline.

What is IIP?

Definition: The Index of Industrial Production (IIP) is an index which shows the growth rates in different industry groups of the economy in a stipulated period of time. The IIP index is computed and published by the Central Statistical Organisation (CSO) on a monthly basis.

Description: IIP is a composite indicator that measures the growth rate of industry groups classified under,

1. Broad sectors, namely, Mining, Manufacturing and Electricity
 2. Use-based sectors, namely Basic Goods, Capital Goods and Intermediate Goods.
- The Base Year for IIP is 2011-2012.**

Awards News

Golden Globes Award

- **Oppenheimer**, Christopher Nolan's drama about the inventor of the atomic bomb, topped the Golden Globes
- Oppenheimer took five prizes including best drama, best director for Nolan, best score, as well as acting trophies for **Cillian Murphy and Robert Downey Jr.**

Swachh Survekshan Awards 2023

- **As per Central Government's annual cleanliness survey, Indore and Surat were adjudged the 'cleanest cities' in the country**
- **Navi Mumbai** retained the **third position**.
- In the **category of 'best performing States' in 'Swachh Survekshan Awards 2023', Maharashtra bagged the top rank, followed by Madhya Pradesh and Chhattisgarh.**

Swachh Survekshan Awards 2023

- The President Droupadi Murmu conferred Swachh Survekshan awards 2023 at Bharat Mandapam, New Delhi hosted by Ministry of Housing and Urban Affairs (MoHUA).
- The theme for the year 2023 was -"**Waste to Wealth**".
- For 2024, the theme is "**Reduce, Reuse and Recycle**".

Key Points:

- **Surat**, a prominent port city, claimed the top honors in cleanliness, sharing the spotlight with Indore. **Indore** had held the solo position for six consecutive years.

About:

- Swachh Survekshan, conducted by **MoHUA since 2016**, is the world's largest urban sanitation and cleanliness survey.
- It has been instrumental in fostering a spirit of healthy competition among towns and cities to improve their service delivery to citizens and towards creating cleaner cities.

- The primary goal of Swachh Survekshan is to encourage large scale citizen participation and create awareness amongst all sections of society about the importance of working together towards making towns and cities better places to reside in.
- Conducted under the ambit of the **Swachh Bharat Mission (Urban)**, the annual survey has managed to mobilise people, resources and authorities in an effort to prove that their city, of all cities in India, is the cleanest and that sustainable practices, both by citizens and ULBs, are being encouraged and promulgated.

Science and Technology News

Oldest evidence of photosynthesis

- A paper published in the journal **Nature** revealed that the **oldest evidence of photosynthetic structures** reported to date has been identified inside a collection of **1.75-billion-year-old microfossils**.
- The discovery helps to shed light on the evolution of oxygenic photosynthesis.

Key points

- Oxygenic photosynthesis is unique to cyanobacteria and related organelles within eukaryotes.
- It is in which sunlight **catylases the conversion of water and carbon dioxide** into glucose and oxygen.

Aditya-L1

- The Indian Space Research Organisation (ISRO) has placed the **Aditya-L1 spacecraft in a halo orbit around the Lagrangian point (L1)**.
- India's maiden solar mission, Aditya-L1, reached the L1 point, 127 days after it was launched on September 2, 2023.

Key points

- Aditya-L1 is the first space based observatory class Indian solar mission to study the Sun from a substantial **distance of 1.5 million kilometers**. It will take approximately 125 days to reach the L1 point.
- The mission **aims to provide valuable insights into the solar corona, photosphere, chromosphere, and solar wind**.

- The primary objective of Aditya-L1 is to gain a deeper understanding of the Sun's behavior, including its radiation, heat, particle flow, and magnetic fields, and how they impact Earth.

Europa Clipper

- Europa Clipper is a **robotic solar-powered spacecraft** built to conduct the first detailed investigations of **Jupiter's icy moon Europa**.
- The spacecraft will orbit Jupiter and make nearly **50 flybys of Europa** to determine whether there are places below Europa's surface that could support life.
- Europa Clipper will launch in **October 2024** on a SpaceX Falcon Heavy rocket from Kennedy Space Center in Florida.
- The spacecraft will fly by **Mars**, then back by **Earth**, using the gravity of each planet to increase its momentum.
- These so-called "**gravity assists**" will provide Europa Clipper with the velocity needed to reach Jupiter in 2030.

Goal:

- After it begins orbiting Jupiter, Europa Clipper will spend about a year altering its trajectory to prepare for its first Europa flyby.
- The spacecraft will then spend about three years soaring past Europa dozens of times and sending data back to Earth.
- Over the course of the mission, the spacecraft will investigate nearly the entire moon.

Europa Clipper Fast Facts

- With its solar arrays deployed, Europa Clipper **spans more than 100 feet (about 30 meters) – about the length of a basketball court**.
- The spacecraft has **24 engines**.
- Europa Clipper will orbit Jupiter and make nearly **50 flybys of Europa**.
- The spacecraft has 9 dedicated science instruments, plus gravity/radio science.
- At launch, Europa Clipper will weigh approximately **13,000 pounds (6,000 kilograms)**. **Nearly 6,000 pounds (2,750) will be propellant**.

Superconductivity

- Superconductivity refers to a state in which a **material offers zero, or near-zero, resistance to electric current**.
- This phenomenon is observed in certain materials at very low temperatures, typically

close to **absolute zero (-273.15°C or 0 Kelvin)**.

- In superconductors, electrical resistance drops to virtually zero, allowing electric current to flow through them without any loss of energy due to resistance.

Lunar Trailblazer

- NASA has recently invested in a class of small, low-cost planetary missions called **SIMPLEX**, which stands for **Small, Innovative Missions for PLANetary Exploration**.
- These missions save costs by tagging along on other launches as what is called a rideshare, or secondary payload.
- One example is the Lunar Trailblazer.
- Lunar Trailblazer will look for water on the moon.
- Lunar Trailblazer will orbit the moon, measuring the temperature of the surface and mapping out the locations of water molecules across the globe.

Jammu CSIR lab finds cannabis plant compound has antibiotic effects

- **Scientists at CSIR-Indian Institute of Integrative Medicine (IIIM), Jammu, have found that phytocannabinoids, a class of compounds found in the cannabis plant, possess some hitherto unexplored antibiotic properties.**
- Cannabis has the **potential to make a dent in India's fight against the escalating threat of antibiotic resistance.**

Thirty Meter Telescope (TMT) project

Context:

- Official delegation from the Department of Science and Technology visits Mauna Kea in Hawaii.
- Focus on addressing challenges to the Thirty Meter Telescope (TMT) project, a global scientific collaboration.

Key Points:

Overview of the TMT Project

- The TMT aims to be a **30-meter optical and infrared telescope for deep space observations.**
- Collaboration involves the U.S., Japan, China, Canada, and India, with Indian participation approved in 2014.

- **India set to contribute hardware worth \$200 million to the project which was approved by Union Cabinet in 2014.**

Local Resistance and Legal Hurdles

- Mauna Kea, housing multiple telescopes, faces opposition from locals on cultural and religious grounds.
- Despite initial construction permits being invalidated by the Supreme Court in 2015, permissions were reinstated in 2018. Construction delays persist due to ongoing local opposition.

Exploration of Alternate Sites and India's Stand

- Discussions are underway to consider the Observatorio del Roque de los Muchachos in Spain as an alternative site for the TMT.
- India, expressing concerns in 2020, emphasized the need for proper procedures and permits. Current Indian perspectives on the project's location remain uncertain.

Future Outlook and Challenges

- Efforts continue to find a consensus and local support for the TMT project.
- Annapurni Subramaniam, the director of the Indian Institute of Astrophysics, anticipates a decision on the project's site within the next two years, highlighting the ongoing challenge of balancing scientific aspirations with community concerns.

Japan launches spy satellite - Optical 8

- Japan has successfully launched an **H2A rocket from the Tanegashima Space Center, carrying the Optical-8 satellite**, a key component of Tokyo's reconnaissance efforts.
- The mission aims to monitor military activities in **North Korea and enhance disaster response capabilities.**

Key Points:

Orbit

- The IGS-Optical 8 satellite is anticipated to enter a circular orbit at an altitude of around **500 kilometers. This orbit will be specifically Sun-synchronous (SSO).**

Purpose of the Mission

- The primary objectives of the mission include observing movements at military sites in North

Korea and improving Japan's responses to natural disasters.

- The Optical-8 satellite, equipped with optical capabilities, plays a crucial role in capturing detailed images for intelligence-gathering purposes.

Japan's Satellite Program

- Initiated in response to a North Korean missile incident in **1998**, Japan's satellite program aims to establish a network of 10 satellites.
- These satellites, including those equipped with radars for night and severe weather operations, are designed to detect and **provide early warnings for potential missile launches.**

Miscellaneous News

Geographical Indications (GI) tag.

Recently, 17 products from across six States/Union Territories got the Geographical Indications (GI) tag.

Key points

- A GI tag is a **sign used on products that have a specific geographical origin** and possess qualities or a reputation that are due to that origin.
- Every GI tag recognises a particular region and product and brings it to the public eye.

List of recent 17 GI tags

- **Odisha** - Lanjia Saura paintings, Dongaria Kondh shawl, Khajuri Guda, Dhenkanal Magji, Similipal Kai Chutney, Koraput Kalajeera Rice
- **West Bengal** - Tangail Saree of Bengal, Garad silk sarees, Korial saree, Kalonunia Rice, Sundarban Honey:
- **Gujarat** - Kachchhi Kharek
- **Jammu Kashmir** - Ramban Anardana
- **Arunachal Pradesh** - Adi Kekir (Ginger), Handmade Carpets, Wancho Wooden Craft.

Project Tiger

- **Project Tiger has completed 50 years**

Key Points:

- Project Tiger was launched by the **Central government on April 1 1973** in a bid to promote conservation of the tiger.
- It was first launched at the **Jim Corbett National Park.**
- It was a **centrally Sponsored Scheme** of the **Ministry of Environment, Forests and**

Climate Change providing central assistance to the tiger States for tiger conservation in designated tiger reserves.

- It **focuses on the conservation of big cats** and ensures the preservation of their natural habitat as tigers are at the top of the food chain.

Critical Tiger Habitats

- The Critical Tiger Habitats come under the purview of the **Wildlife Protection Act of 1972.**
- These habitats are created by keeping the interests of the Scheduled Tribes in consideration along with those people whose livelihoods depend on the forests.
- **Critical wildlife/tiger habitats (CWH)** are defined by the **Forest Rights Act of 2006 as areas of National Parks and Sanctuaries** that must be protected for wildlife protection.
- After an open consultation process by an Expert Committee, the Central Government's Ministry of Environment and Forests makes the decision and notifies the public.

National Tiger Conservation Authority

- **National Tiger Conservation Authority (NTCA)** is a **statutory body** under the Ministry of Environment, Forests and Climate Change.
- It was **established in 2005** following the recommendations of the Tiger Task Force.
- It was constituted under enabling provisions of the **Wildlife (Protection) Act, 1972**, as amended in 2006, for strengthening tiger conservation, as per powers and functions assigned to it.

National Human Trafficking Awareness Day

- **National Human Trafficking Awareness Day is observed annually on January 11th**
- In 2007, National Human Trafficking Awareness Day was declared by the United States Senate to be celebrated on January 11
- It aims to raise awareness about the horrific crime of human trafficking and the millions of people impacted by it worldwide.
- This day serves as a crucial reminder to stay vigilant, educate ourselves, and take action to combat this modern-day slavery.

About:

- Human trafficking is the illegal trade of people for various purposes, including forced labor,

sexual exploitation, organ harvesting, and domestic servitude.

Did you Know?

- Blue is internationally recognized as the universal color for human trafficking prevention

Humboldt's enigma in context of India

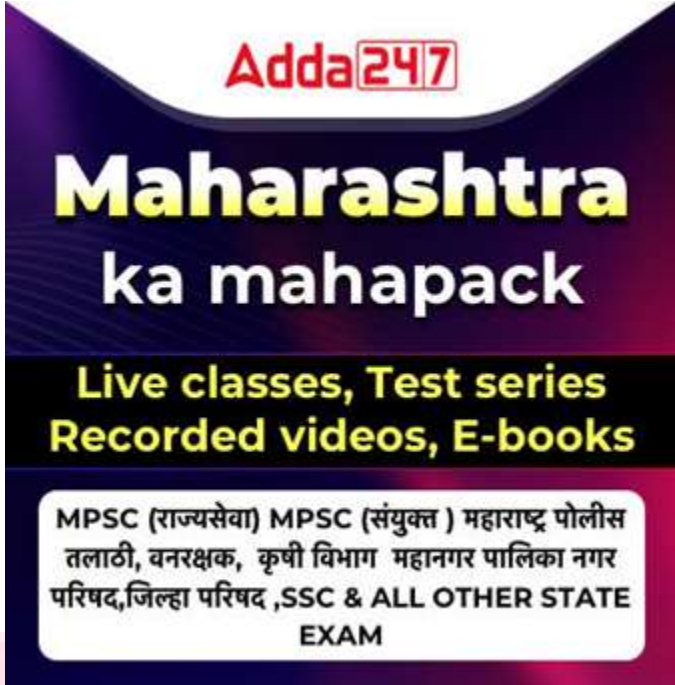
- Humboldt's enigma refers to the puzzling observation that mountain regions, particularly in the tropics, harbor a disproportionately high level of biodiversity compared to other, seemingly more suitable habitats like tropical rainforests.

Significance for India:

- **Unique biodiversity hotspots:** The Western Ghats and Sri Lanka harbor exceptional plant and animal species not found elsewhere, making them globally significant biodiversity hotspots.
- **Climate change vulnerability:** Elucidating the factors behind the enigma aids in predicting how plant communities might respond to changing climate patterns, crucial for conservation efforts.

Amazon's Audible laying off 5% of workforce

- Audible, the online audiobook and podcast service owned by Amazon, is laying off 5% of its workforce, marking the latest round of job cuts in the tech industry.
- This is the third round of job cuts at Amazon businesses this week, following layoffs in streaming and studio divisions.



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