Prelim Bits 15-11-2023 | UPSC Daily Current Affairs

GPS Tracker

Recently, a prisoner in Jammu and Kashmir was released on bail after he was tagged with a Global Positioning System (GPS) tracking device to monitor his movements.

> *GPS trackers are a precondition for bail in several countries including the United States, the United Kingdom, and Malaysia. It is the 1st time this technology has been used in India for this purpose.*

- **GPS Tracker** – It is a small, portable unit that allows users to monitor and track its location.
- It connects to a series of satellites to determine location and consists of 3 segments.

> *The **Global Positioning System (GPS),** originally Navstar GPS, is a satellite-based radio navigation system owned by USA.*
>
> ***Global Navigation Satellite System (GNSS)** refers to a constellation of satellites providing signals from space that transmit positioning and timing data to GNSS receivers. It typically includes GPS, GLONASS, Baidu, Galileo, and any other constellation system.*

- **Space Segment** – GPS consists of *27 satellites* that orbit the Earth (24 are operational, and 3 are backup satellites) and orbit the earth *every 12 hours*.
- **User Segment** – It has GPS receivers to receive the signals sent by GPS satellites and use them to determine the user's position in space and time.
- **Control segment** - Different tracking stations are located around the globe which pick up microwave carrier signals transmitted by the satellites.

- **Working principle** – The tracker uses a process called *trilateration* which uses the position of 3 or more satellites from GPS satellites and its distance from them to determine latitude, longitude, elevation, and time.

> *In geometry, **trilateration** is defined as the process of determining absolute or relative locations of points by measurement of distances, using the geometry of circles, spheres or triangles.*

Reference

Indian Express| GPS Tracker

Volcanic Eruptions

Mount Etna, Europe's most active volcano, shoots plumes of smoke and ashes with eruptions.

- **Volcanoes** – They are openings or vents where lava, tephra (small rocks), and steam erupt onto the earth's surface.
- They can be seen *both on land and in the ocean.*
- In part, they are a result of their own eruptions but also the general formation of our planet, as tectonic plates move.
- Based on the eruption flows of lava, its impacts on volcano and on its surrounding environment, there are *4 main types of volcanoes.*
    - **Cinder cones**
    - **Composite or stratovolcanoes**
    - **Shield volcanoes**
    - **Lava domes**
- **Volcanic Eruptions** – It is magma or molten rock, below the surface of the Earth, bubbling up, rising and overflowing and getting spewed across the land.
    - **Basaltic eruptions** – They are characterized by *low gas content and low viscosity* magmas where basalt is highly fluid and spread across quietly.
    - **Andesitic eruptions** – They are explosive volcanoes which are characterised by *high gas content* where andesitic is less fluid mobile and solidifies at short distance due to intense pressure developed inside.
- ***Lava*** is the magma that reaches earth's surface.

Volcanic Eruptions			
Long-term		Recent	
Volcanoes	Location	Volcanoes	Location
Mount Etna	Italy	Mayon	Philippines
Kilauea	Hawaii	Semeru	Indonesia
Mauna Loa	Hawaii	Mount Merapi	Indonesia
Dukono	Indonesia	Eyjafjallajökull /Fagradalsfjall	Iceland
Santa Maria	Guatemala	Fuego	Guatemala
Yasur	Vanuatu	Klyuchevskoy	Russia

> *Pacific Ring of Fire or Circum-Pacific Belt a long seismically active belt along the Pacific Ocean is home to about 75% of the world's volcanoes.*

References

Indian Express| Long term volcanic eruptions

Active and Passive Equity Funds

According to a new study, active equity funds witnessed higher net inflows than passive equity funds in the Q2 of FY24.

- **Equity fund** – It is a mutual fund that invests principally in stocks and thus called as ***stock funds*** which generally carry a *high risk* for long-term investments but can yield substantial returns over time.
- These are categorized into ***small, mid, and large-cap*** based on the size of the company.

> *A **mutual fund** collects money from investors and invests the money, on their behalf, in securities (debt, equity or both).*

	Active Equity Funds	Passive Equity Funds
Fund Manager's Role in stock selection	Active	Passive
Expense ratios	Higher	Lower
Portfolio management	Driven by different strategies	Driven by benchmark index
Trading Frequency	Higher	Lesser
Capital Gains Tax	Higher	Lesser
Returns	Relatively higher	Lesser
Applicability	For investors favouring fund managers' alpha generation potential	For investors who want to allocate exactly as per market index
Examples	ELSS (equity linked saving scheme)	Index mutual funds, Exchange-Traded Funds (ETFs)

> ***Expense ratio** is the annual maintenance charge levied by mutual funds to finance its expenses that includes annual operating costs, including management fees, allocation charges, advertising costs, etc. of the fund.*
>
> ***Capital gains taxes** are owed on the profits from the sale of most investments if they are held for at least 1 year.*

Reference

Indian Express| Active and Passive Equity Funds

Asia-Pacific Economic Cooperation (APEC)

USA hosts Asia-Pacific Economic Cooperation (APEC) grouping meeting in November 2023 which will conclude with the Economic Leaders' Retreat ceremony.

- It is a regional economic forum to leverage the growing interdependence of the Asia-Pacific.
- **Established in** – 1989
- **Aim** – To create greater prosperity for the people of the region by promoting balanced, inclusive, sustainable, innovative and secure growth and by ***accelerating regional economic integration***.
- **Secretariat** – It is ***based in Singapore.***
- **Membership** – 21 members which are termed as "economies" because trade and economic issues are the focus of the grouping.
- *India is not a member but India made a formal request in 1991 to join APEC.*

  The *Taiwan and Hong Kong attend APEC meetings as distinct entities of economies.*



APEC economies' 2.9 billion citizens make up roughly 60% of global GDP and as of 2018, they represented 48% of global trade.

- **APEC Process** – All economies have an equal say, consensus based decision-making, ***no binding commitments*** and works on both bottom-up and top-down approach.
- **Activities** – It ensures **easier movement of goods, services, investment and people across borders**.
- Initiatives includes sustainable management of resources, promoting energy efficiency, ensuring disaster resilience, planning for pandemics, and addressing terrorism.

Indo-Pacific Economic Framework for Prosperity (IPEF) is USA led alternative to China's economic statecraft in the region comprising of 14 members. Apart from Fiji and India, the rest are all APEC members.

References

1. Indian Express| USA hosts 2023 APEC Summit
2. APEC| Asia-Pacific Economic Cooperation

Global TB Report 2023

According to the Global TB Report 2023, India accounts for 27% of the total TB cases in the

world.

- It is **annual report** by World Health Organisation (WHO) since 1997.
- **Global Tuberculosis Report 2023** – It provides a comprehensive and up-to-date assessment of
  - TB epidemic
  - Progress in prevention, diagnosis and treatment
  - At global, regional and country levels.
- **Data source** – Data from national ministries of health.
- **Coverage** – 192 countries and areas (out of 215) with more than 99% of the world's population and TB cases reported data.
- **Report Findings** – TB remains the *world's second leading cause of death* from a single infectious agent.
- The net reduction from 2015 to 2022 was 8.7%, far from the WHO End TB Strategy milestone of a 50% reduction by 2025.
- COVID-related disruptions have resulted in almost half a million excess deaths from TB in the three years 2020–2022.
- The treatment success rates improved to 88% for people treated for drug-susceptible TB and 63% for people with MDR/RR-TB.

Findings of report for India

- **Infected population** – Nearly 28.2 lakh people got TB in India in 2022, meaning 1 person gets TB every 11 seconds in India.
- **India's contribution to the global burden** – It is at 27%, which is 1% down from the previous year's 28%.
- **Reporting of TB cases** – It increased crossing even the pre-pandemic high with 24.2 lakh cases in 2022.
- **Treatment coverage** - It increased to 80% and India was among only 4 countries among the 30 high-burden countries to achieve this.
- **TB Mortality** - A reduction in India's contribution towards global mortality from 36% in the previous years to 26% in 2022.
- India was the only country to have completed a National TB prevalence survey since 2019.
- Currently, 199 new TB cases per lakh population is observed in India.

References

1. Indian Express| Global TB Report findings about India
2. WHO| Global TB Report 2023

Other Important News

National Ayurveda Day

• Recently, the National Ayurveda Day was observed on *10th November.*
• It is celebrated in India every year on the occasion of Dhanwantari Jayanti (Dhanteras) since 2016.
• Focal theme for 2023 is '***Ayurveda for One Health***', with the tagline, '*Ayurveda for everyone, every day*' focusing on human-animal-plant-environment interface.
• *Central Council for Research in Ayurvedic Science (CCRAS),* under the Ministry of Ayush is the coordinating agency for Ayurveda Day programs.

Korai Grass Mats (Reed grass mat)

• Also known as *korai paai* in Tamil, these mats are crafted from the dry grass cultivated along the banks of the Cauvery in ***Tamil Nadu***.
• During summer, straw mats are cool to sleep on, and they turn warm to sleep on in cold weather.
• It is an inseparable element in traditional gifts in Tamil weddings.

AAINA Dashboard for Cities

• **Aim -** To encourage Urban Local Bodies (ULBs) across the country to voluntarily submit key data through a user-friendly data entry form on the portal
• **Initiative of** - *Ministry of Housing and Urban Affairs*.
• The Ministry through *Digital India Corporation* will provide handholding support to ULBs in the data submission process.

Sharda Peeth

• It is located in the *Neelam Valley* of ***Pakistan-occupied Kashmir*** along the Line of Control (LoC).
• It's situated on the banks of the *Kishanganga River*.
• It is regarded as one of the *18 Maha Shakti Peethas* and a major centre of learning.

Picocystis salinarum

• It is a green alga that lives in saline-soda lakes.
• It is an *extremophilic alga* resorting to physiological adaptation to highly saline-alkaline/hyperosmotic conditions.
• It was spotted for the 1st time in India in the ***Sambhar Lake*.**

White Goods

• White goods are large home appliances and electrical goods for the house which were traditionally available only in white.
• **Example -** Stoves, Refrigerators, Freezers, Washing machines, Tumble driers, Dishwashers, Air conditioners, LED lights, Water heaters, Microwave ovens, Induction cookers.
• It also refer to *white fabrics,* especially linen or cotton that are historically used to be made of white cloth.
• In the beverage industry, white goods are colorless spirits, such as *vodka or gin.*

Reykjanes Peninsula

• **Location** - *South West Iceland,* on the floor of the Atlantic Ocean.
• It is a volcanically active region that runs along the *Mid-Atlantic Rift,* where the Eurasian and the North American tectonic plates are drifting apart.
• Recently, the ***Fagradalsfjall volcano*** erupted in this region.

Lockbit 3.0

• Also known as *"LockBit Black"*, LockBit 3.0 is a *ransomware*, a type of malware that locks a victim's data or device unless the victim pays a ransom to the attacker.
• It operates under the business model of "ransomware-as-a-service".
• Recently, the US arm of the China's Industrial and Commercial Bank of China (ICBC), world's largest lender in terms of assets, was hit by Lockbit 3.0.

Ben Gurion Canal Project

• It is a proposed canal *through Israel* that would connect the ***Gulf of Aqaba (Red Sea) to the Mediterranean Sea***.
• It was named after David Ben-Gurion, Israel's founding father and 1st Prime Minister.
• The project was envisioned in the 1960s to create an alternative route to the Suez Canal and challenge Egypt's monopoly on the shortest trade route between Europe and Asia.

Green Crackers

• They are fireworks made with a reduced shell size without ash, and use additives such as dust suppressants to reduce emissions and particulate matter.
• These crackers ***lack barium compounds*** that is responsible for the green hue and noise pollution.
• The idea was introduced by the *Council of Scientific and Industrial Research-National Environmental Engineering Research Insititute (CSIR-NEERI)* in 2018.
• 3 broad categories of green crackers - **SWAS** (safe water releaser), **SAFAL** (safe minimal aluminium) and **STAR** (safe thermite cracker)

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