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DAILY pre PARE
Current affairs summary for prelims

3 June, 2024

Earliest-known Galaxy

Context: *NASA's James Webb Space Telescope (JWST) has discovered the earliest-known galaxy, surprisingly bright and large, forming when the universe was just 2% of its current age.*

Observations by JWST:

- JWST, by peering across vast cosmic distances, observed the galaxy about 290 million years after the Big Bang event.
- This period, known as cosmic dawn, spans the universe's first few hundred million years.
- The discovery was made by an international team of astronomers as part of the JWST Advanced Deep Extragalactic Survey (JADES) program.

Characteristics of the Galaxy:

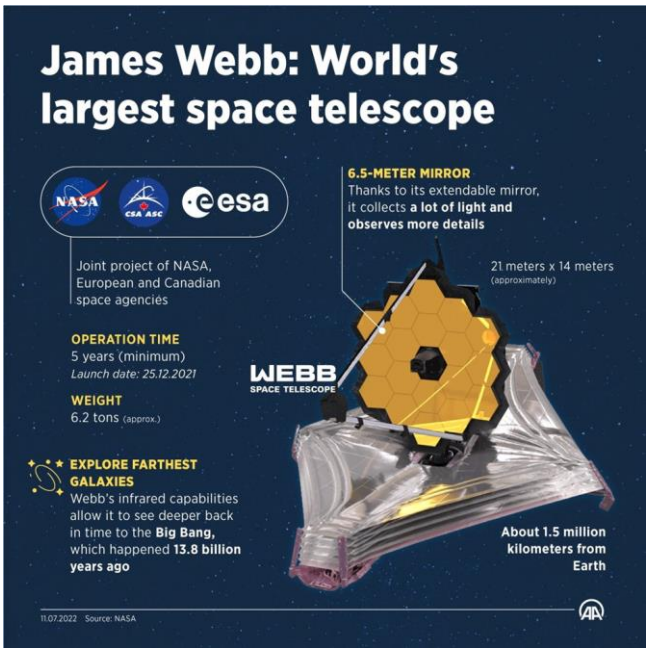
- The galaxy, named JADES-GS-z14-0, measures approximately 1,700 light-years across.
- It has a mass equivalent to 500 million stars the size of our Sun and is rapidly forming new stars, about 20 every year.
- This galaxy is larger and brighter than previously known galaxies at similar distances.
- The previous earliest-known galaxy dated to about 320 million years after the Big Bang.
- The discovery challenges understanding of how such large galaxies formed in the early universe.

Additional Discoveries:

- The JADES team also disclosed the discovery of the second oldest-known galaxy, JADES-GS-z14-1, from about 303 million years post-Big Bang.
- This galaxy is smaller, with a mass equivalent to about 100 million sun-sized stars and forming about two new stars per year.

Explanation for Brightness:

- Three main hypotheses have been proposed to explain the luminosity of early galaxies.
- The first hypothesis involving supermassive black holes has been ruled out by the new findings.
- Further research is needed to determine whether other hypotheses, such as galaxies being populated by more stars or brighter stars, hold up.



FDI in India

Context: *In the fiscal year 2023-24, Singapore became India's largest FDI contributor, followed by Mauritius, according to government data.*

FDI Trends (2023-24):

- India received the highest foreign direct investment (FDI) from a specific country, despite an overall contraction of about 3.5% in overseas capital inflows due to global economic uncertainties.
- The top investor's FDI decreased by 31.55% to $11.77 billion, yet India attracted the maximum inflows from that country.

FDI Equity Inflows (2023-24):

- FDI equity inflows declined from major countries, while investments increased from other nations.
- Singapore has been the largest source of FDI for India since 2018-19, while Mauritius held the position in 2017-18.

Reasons for Prominence:

- Singapore emerged as the preferred jurisdiction for investment in India following amendments to the India-Mauritius tax treaty.
- Its competitive domestic tax regime and efficient regulatory setup contributed to its position as the top FDI contributor.

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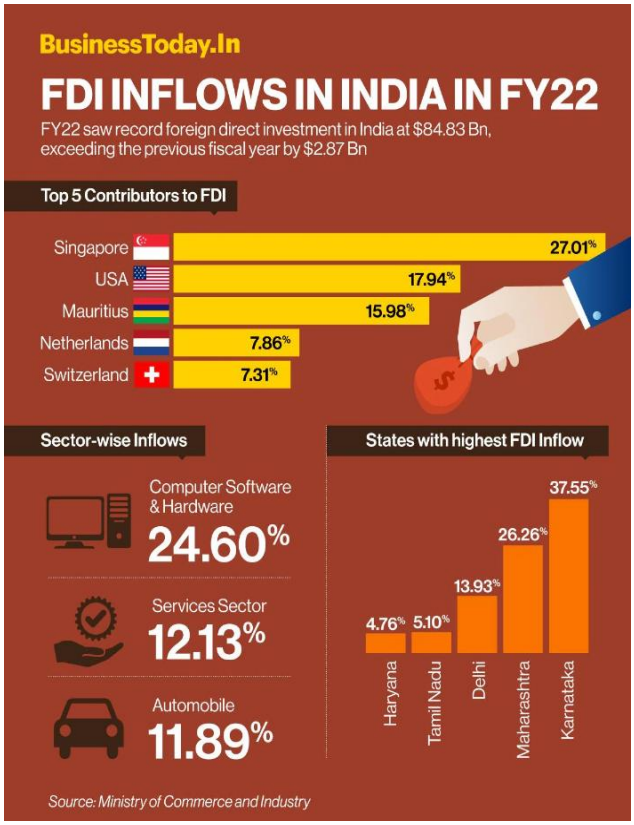
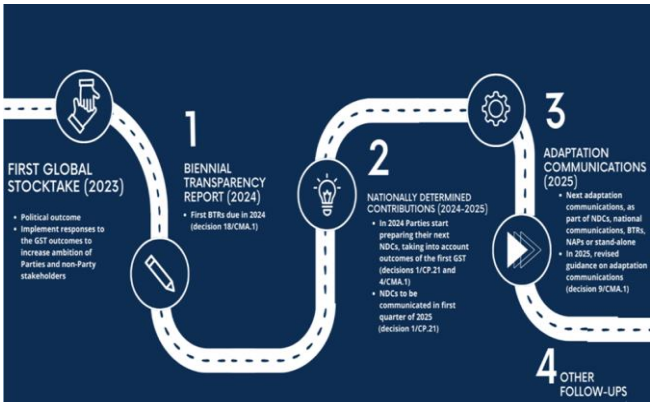
- **Factors Influencing FDI Inflows:**
  - Global uncertainties, geopolitical tensions, and domestic policy developments may influence FDI inflows in the coming years.
  - The stable government post-elections could positively impact FDI, but global headwinds remain strong.
- **Sectoral Trends (2023-24):**
  - FDI inflows contracted in various sectors, including services, computer software and hardware, trading, telecommunication, automobile, pharma, and chemicals.
  - In contrast, construction (infrastructure), development, and power sectors registered healthy growth in inflows.
- **Contribution to Total FDI:**
  - Mauritius and Singapore collectively accounted for a significant portion of India's total FDI inflows from April 2000 to March 2024.
  - Foreign investments play a crucial role in India's infrastructure development and balance of payments situation.



60th meeting of the Subsidiary Bodies (SB60)

Context: *Ahead of the 29th COP to UNFCCC, Delhi-based think tank CSE urges developed nations to fulfill their climate finance obligations.*

- **60th Meeting of the Subsidiary Bodies (SB60):**
  - The mid-year climate conference, SB60, is scheduled to take place in Bonn, Germany from June 3-13, 2024.
  - It will gather signatory countries to the United Nations Framework Convention on Climate Change (UNFCCC).
  - Approximately 6,000 participants, including national delegates and civil society representatives, are expected to attend.
  - SB60 serves as a crucial midpoint between the 28th CoP in Dubai and CoP29 in Azerbaijan, setting the stage for the next phase of global climate negotiations.
- **Focus Areas:**
  - Climate finance and advancing progress on Nationally Determined Contributions (NDCs) will be key agenda items.
  - The meeting will emphasize the timely submission of countries' First Biennial Transparency Reports and work on National Adaptation Plans.
  - Accelerating climate action through a just transition will also be addressed.
- **Annual Global Stocktake (GST) Dialogue:**
  - SB60 will feature the inaugural Annual GST Dialogue, aiming to facilitate the sharing of effective strategies and lessons learned on incorporating GST outcomes into NDCs.
  - The dialogue seeks to promote collaborative learning and progress towards achieving the goals of the Paris Agreement.



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NEWS IN BETWEEN THE LINES

Kankaria Lake

Recently, the Municipal Corporation of Ahmedabad installed colourful umbrellas at Kankaria Lake's main gate to beautify the area and attract more summer visitors.

About the Kankaria Lake:

- Kankaria Lake, also known as "**Qutb Hauz"** or "**Hauz-i-Qutb"** is the **second second-largest lake** in Ahmedabad, **Gujarat**.
- The lake was **built in 1451** by the ruler of the Gujarat Sultanate, **Sultan Qutb-ud-Din Ahmad Shah II**.
- It is an artificial and circular lake with thirty-four sides.
- Kankaria Lake underwent extensive redevelopment and was reopened to the public in **2008**.
- A week-long festival known as the **Kankaria Carnival** is **held annually** here.
- This festival showcases a variety of **cultural, art and social activities,** attracting numerous tourists and locals.

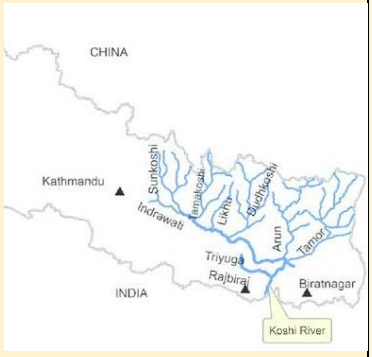
Institute of Advanced Virology

Recently, the scientists at the Institute of Advanced Virology (IAV) at Thonnakkal have developed a novel way of generating non-infectious Nipah virus-like particles (VLPs) in the laboratory, which mimic the wild-type Nipah Virus (NiV).

About the Institute of Advanced Virology:

- The Institute of Advanced Virology (IAV) is a **research institute** that is affiliated to the global to the Global Virus Network, located in the **Bio 360 Life Sciences Park** at Thiruvananthapuram, Kerala.
- It was inaugurated in **February 9, 2019.**
- Its primary aim is to conduct advanced research in virology and viral diseases.
- It focuses on understanding virus–ralated diseases, developing vaccines, diagnostics and antiviral therapies.
- It was established in context of increasing viral outbreaks, such as the **Nipah virus in Kerala.**
- It has **BSL (Biosafety Level) laboratories**, which are crucial for handling dangerous and emerging viruses.
- It **works under the aegis of the Kerala State Council for Science, Technology and Environment (KSCSTE)**

Sunkosi River

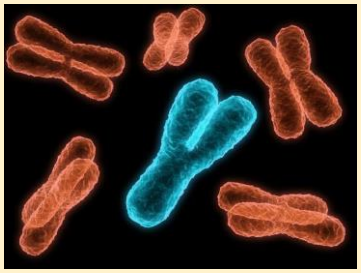


Recently, in order to clean river Sunkosi in the Bagmati province of Nepal, 134 people participated in a river cleanup campaign organised by Project CAP (Collaborative Approach for Preventing Plastic Leakages in Rivers) in Golanjor rural municipality under the PLEASE (Plastic Free Rivers and Seas of South Asia) program.

About Sunkosi River:

- Sunkosi river is one of the major **tributaries of the Kosi river** (Sorrow of Bihar), located in Nepal.
- It originates in the **Tibet Autonomous Region of China** and flows through the Himalayas in Nepal.
- It **is known for its white-water rafting** opportunities and one of the major river in Nepal.
- This river is fed by various tributaries such as **Dudh Kosi, Likhu Khola, Tamakoshi and Indravati.**
- India has banned single-use plastic from 1st July 2022 under the Plastic Waste Management Amendment Rules, 2021.

Y Chromosome



Recently, a ground-breaking study revealed that only 14-27% of the DNA sequences on ape Y chromosomes are similar to those in humans, indicating a significantly accelerated evolution rate for this male sex chromosome.

About the Y chromosome:

- The Y chromosome is one of the **two sex chromosomes**, with the other being the X chromosome.
- It plays a crucial role in determining **male sex characteristics** and fertility.
- The Y chromosome has undergone significant evolutionary changes over time.
- It originated from an **ordinary autosome** (non-sex chromosome) but acquired genes responsible for male-specific functions.
- Unlike the X chromosome, which has a homologous pair in females, **the Y chromosome** is present only in males.
- It carries genes related to male reproductive organs and secondary sexual characteristics.
- The Y chromosome exhibits relatively low genetic variation compared to other chromosomes.

	▪ This is because it **is passed exclusively from father to son without recombination (exchange of genetic material) with the X chromosome.** ▪ Sons inherit their Y chromosome from their fathers without any recombination, maintaining the paternal genetic lineage. ▪ Y chromosome DNA analysis is commonly used in forensic genetics and genealogical research to trace paternal ancestry.
Place in News **Philippines**	*Recently, Philippines President Ferdinand Marcos Jr. stated that his government seeks "more robust collaboration" with partners like India to enhance regional stability.* **Philippines (Capital: Manila)** **Location:** The Philippines is an archipelago located in Southeast Asia, situated in the western Pacific Ocean. **Boundaries:** ▪ Philippines shares its borders with the **Philippine Sea** (East), the **South China Sea** (West) and **the Celebes Sea** (South). ▪ It also shares maritime borders with **Palau** (East and Southeast), **Vietnam** (West), **Taiwan** (North), **Indonesia** (South), Japan (Northeast), **China** (Northwest) and **Malaysia** (Southwest). **Physical Features:** ▪ The highest point in the Philippines is **Mount Apo**, located on the island of Mindanao. ▪ The major rivers of the Philippines include the **Cagayan**, **Mindanao**, Agusan, **Pampanga**, **Agno**, **Pasig**, Bicol, Chico, **Pulangi** and Marikina rivers. ▪ The Philippines has a **tropical maritime climate**. ▪ The Philippines is rich in mineral resources, including **gold**, **copper**, **nickel**, **chromite** and **coal**.

POINTS TO PONDER

- Where did the 6th Meeting of India-Japan Joint Working Group on Counter Terrorism take place recently? **– New Delhi**
- Which nation recently established its inaugural space agency and aims to achieve a Mars landing by 2045? **– South Korea**
- What is the theme of 'World No Tobacco Day 2024'? **– Protecting Children From Tobacco Industry Interference**
- From which institution did researchers devise a safer technique for large-scale production of recombinant proteins? **– Indian Institute of Science (IISc)**
- What was the primary objective of the Red Flag 24 exercise held in Alaska recently? **– To integrate aircrew in a multinational environment through advanced aerial combat training**