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National and International News

ISRO's Innovative Approach to Zero Orbital Debris	**Context:** ● ISRO's **PSLV-C58/XPoSat mission has achieved a remarkable feat by leaving virtually no debris in Earth's orbit.** ● This achievement is attributed to the **innovative use of the PSLV Orbital Experimental Module (POEM), developed by the Vikram Sarabhai Space Centre (VSSC).** **POEM:** ● POEM is powered by **solar panels and a lithium-ion battery mounted on the fuel tank of the rocket's fourth stage.** ● It is equipped with a **dedicated navigation, guidance, and control (NGC) system,** including four Sun sensors, a magnetometer, and gyroscopes, which communicate with **ISRO's NavIC satellite constellation for navigation.** ● POEM also features **helium control thrusters and a telecommand system for ground station communication.** **Key points:** ● This achievement is **significant due to the escalating issue of space debris, particularly in low Earth orbit (LEO).** ● LEO debris consists of spacecraft fragments, rockets, defunct satellites, and fragments from anti-satellite missile tests, posing risks to operational satellites. ● **ISRO's Space Situational Assessment report 2022 noted a significant increase in the number of objects placed in space, highlighting the urgent need for effective debris mitigation strategies.** **Concerned Laws:** ● While there are **no international laws specific to LEO debris,** most **space-faring nations adhere to the Space Debris Mitigation Guidelines 2002 set by the Inter-Agency Space Debris Coordination Committee (IADC),** endorsed by the **U.N. in 2007**.

	• **Aim:to reduce accidental collisions,** break-ups during operations, intentional destruction, and post-mission break-ups. • They discourage the **long-term presence of spacecraft and launch vehicle orbital stages in LEO and limit their impact on the geosynchronous orbit (GEO).** **Various initiatives:** • Various space agencies have implemented **strategies to address space debris.** • **NASA's Orbital Debris Program, initiated in 1979, focuses on reducing orbital debris and developing technologies** for tracking and removing existing debris. • The **European Space Agency (ESA)** has adopted a **'Zero Debris charter,'** aiming for zero space debris **by 2030** and advocating for its adoption by other agencies. • **Japan's Commercial Removal of Debris Demonstration (CRD2)** project is another effort to tackle the issue of space junk.
Right to sleep	**Context:** • The Bombay High Court rejected a plea from a 64-year-old businessman regarding his arrest by the Enforcement Directorate (ED), criticizing the ED for making him wait overnight and recording his statement, thereby **depriving him of the 'right to sleep' under Article 21 of the Constitution.** **Key points:** • The court emphasized that the **'right to sleep' is a fundamental human need and depriving someone of it violates their human rights, affecting their health and cognitive skills.** • It directed the agency to issue guidelines on the timings for recording statements under Section 50 of the **Prevention of Money Laundering Act (PMLA).**
Credit-Deposit Ratio	**Context:** • The **March 2024 report by CareEdge** highlighted that **banks' credit-deposit (CD) ratio has reached a decadal high, standing at around 80 percent.** • This ratio reflects the percentage of deposits banks have raised that have been lent out, indicating liquidity and credit risks for banks. **About:**

	• The **currency deposit ratio,** on the other hand, reveals the **proportion of currency that individuals hold compared to aggregate deposits.** • When the cash deposit ratio increases, the money multiplier decreases. • Similarly, an increase in deposit rates encourages depositors to deposit more, **reducing the Cash to Aggregate Deposit ratio and increasing the Money Multiplier.**
Jiadhal River	**Context:** • The Jiadhal River, a tributary of the Brahmaputra River in northern India, is facing the adverse effects of climate change, disrupting its once tranquil flow. **Key points:** • **Originating in the sub-Himalayan mountains of Arunachal Pradesh at an altitude of 1247m**, the river courses through a narrow gorge in **Arunachal Pradesh before entering the plains of Assam's Dhemaji district,** where it flows in braided channels. • It finally meets the **Brahmaputra near Selamukh in Lakhimpur district.** • However, due to the construction of an embankment over the Kherkutiya Suti of the Brahmaputra, **the river now merges with the Subansiri River.** • Spanning a total length of **187 km, the river's topography transitions from hilly terrain in the upper basin (Himalayan range) to a plain area in the middle and downstream.** • The Jiadhal River's catchment area covers 1053.20 sq.km., **with 696.80 sq.km. in Assam and 356.4 sq.km. in Arunachal Pradesh.** • It receives heavy rainfall, leading to a significant silt load from its **1346 sq. km catchment area during the rainy season.** • This results in the considerable rise of its riverbed as the silt deposits on its bed in the plains. • Known for **its frequent course changes and devastating floods, the Jiadhal River exemplifies a flashy river, causing floods with a sudden, high discharge over a short time (a few hours to a day) and carrying a high sediment load and debris.**
Operation Meghdoot	**Context:** • The Indian Army **commemorated 40 years of 'Operation Meghdoot' on the Siachen Glacier,** a milestone in its strategic presence there.

- This operation has seen significant technological and logistical advancements.

Operation Meghdoot's History:

- **Launched on April 13, 1984**, by the **Indian Army and Indian Air Force (IAF),** it marked a pivotal moment in securing the strategically crucial region dominating Northern Ladakh.
- **IAF helicopters had been operating in the area since 1978, including the first landing of an IAF helicopter on the glacier in October 1978.**

Operation Meghdoot's Unique Significance:

- Launched in **1984, 'Operation Meghdoot'** secured the Siachen Glacier, involving the first assault on the world's highest battlefield.
- **Indian troops gained control of the entire Siachen Glacier as a result of this operation.**
- The Siachen Glacier now boasts state-of-the-art medical infrastructure, including telemedicine nodes established by **ISRO.**
- The Indian Army acknowledged the sacrifices of its brave soldiers and the immortal spirit that characterizes its long deployment in Siachen.

Improved Living Conditions and Connectivity:

- **Recent initiatives have focused on improving connectivity, leading to advancements in the supply chain.**
- This ensures that personnel stationed at forward posts in the Northern and Central Glaciers now have access to fresh rations and vegetables.
- The use of **heavy-lift helicopters and logistic drones has significantly improved the supply of essential resources to personnel stationed at isolated posts, especially during harsh winter conditions.**

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