

Amplifying the Global Value of Earth Observation Report

- The **World Economic Forum released a report** on the economic potential of **Earth Observation (EO)** technologies.
 - EO involves collecting data about Earth's activities, encompassing natural and artificial systems such as physical, chemical, biological, and human systems. It includes data gathered remotely from satellites and aircraft, as well as in-situ data from GPS-enabled devices and sensors.
- **Economic Impact:**
 - EO technologies are projected to contribute \$3.8 trillion to the global gross domestic product (GDP) between 2023 and 2030.
- **Industries Benefiting:**
 - Various industries stand to benefit significantly from EO technologies, including agriculture, electricity and utilities, and mining.
- **Agriculture Sector:**
 - EO can be leveraged in agriculture to optimize processes through precision agriculture, leading to improved resource management and reduced consumption.
- **Electricity and Utilities:**
 - In the electricity and utilities sector, EO technologies enable better forecasting of energy potential and aid in operations management for renewable energy sources like solar, wind, and hydropower.
- **Mining Industry:**
 - EO technologies facilitate the exploration of rare Earth minerals in old mines and enhance the efficiency of lithium exploration.
- **Climate Opportunities:**
 - EO applications have the potential to significantly reduce carbon dioxide (CO₂) emissions, with projections indicating a reduction of over 2 billion tonnes annually by 2030.
- **Climate Applications:**
 - These applications include early warning systems for wildfire risk characterization and detection, as well as environmental impact monitoring through satellite and aircraft-borne sensors to track greenhouse gas emissions.
- **Challenges Ahead:**
 - Despite the vast potential, there are challenges such as limited awareness of EO applications, a shortage of specialized talent, fragmented standards, and navigating the complex EO marketplace. Addressing these challenges will be crucial for maximizing the benefits of EO technologies across industries
- **Global Initiatives for EO:**
 - **MethaneSAT:** A project aimed at identifying sources of methane emissions worldwide.
 - **Allen Coral Atlas Monitoring Tool:** The first-of-its-kind satellite-based system designed for global monitoring of coral reefs.
 - **NASA-ISRO Synthetic Aperture Radar (NISAR):** A collaborative effort between NASA and ISRO (Indian Space Research Organisation) to study changes in Earth's ecosystems, ice mass, vegetation biomass, and more using advanced radar technology.

PM KUSUM

- **The scheme aims to add solar and renewable energy capacity of 30.8GW (30,800 MW) by 2022.**
- **Launch Year** - 2019 (Extended till March 2026)
- **Central funding** - Rs. 34,422 Crore
- **Nodal Ministry** - Ministry of New and Renewable Energy
- **Implementation:** State Nodal Agencies of MNRE coordinate with States/UTs, Discoms and farmers.
- **Feeder level solarization:** DISCOMS will be the implementing agency.
 - Increasing farmer's income, providing reliable source for irrigation and de - dieselise the farm sector.
 - Minimum life required for all solar components developed under the scheme should be 25 years.

World's largest Direct Air Capture and Storage (DAC+S) Plant

- World's largest **Direct Air Capture and Storage (DAC+S)** plant, Mammoth, starts **operation in Iceland**
- It is the **second commercial Direct Air Capture and Storage (DAC+S)** facility operated by **Swiss company Climeworks**.
- Significantly larger than its predecessor **Orca**.
- **DAC+S Technology:**
 - Utilizes Carbon Dioxide Removal (CDR) technology to capture CO2 directly from the atmosphere at any location.
 - Different from carbon capture, which typically occurs at the point of emissions.
 - Captured CO2 can either be permanently stored in deep geological formations (DAC+S) or utilized for various applications.
- **About CDR:**
 - CDR involves human activities aimed at removing CO2 from the atmosphere and storing it durably in geological, terrestrial, or ocean reservoirs.
 - Considered a crucial element in achieving net-zero CO2 and greenhouse gas emissions, as highlighted in the **IPCC Sixth Assessment Report**.

Kamikaze Drone

- Development of **India's First Kamikaze Drone** by **Kadet Defence Systems** in collaboration with the **Defence Research Development Organisation (DRDO)**.
- **About Kamikaze Drones:**
 - Also known as Loitering Aerial Munitions (LAM) or Suicidal drones.
 - Functionality involves crashing onto the target.
- **Features:**
 - Capable of loitering over the target area for extended durations to identify targets precisely.
 - Exhibits precision targeting capabilities, allowing for mid-flight target changes or mission aborts.
 - Adaptable to various terrains, including deserts, plains, and high-altitude environments.
- **Performance:**
 - Loitering capacity: Approximately 12 hours.
 - Flying range: Ranges between 150 km to 300 kilometers.

Results Of RBI s G-Sec Buyback And Market Dynamics

- **The Reserve Bank of India (RBI)** recently initiated a **buyback of government securities (G-Secs)**, receiving proposals totaling Rupees 17,384.552 crore. However, only Rupees 10,513 crore worth of proposals were accepted, despite the declared amount being Rupees 40,000 crore. Market analysts speculate that banks may have submitted bids at inflated prices, resulting in the rejection of bids that did not align with secondary market values.
- **Repurchase, or buyback, of Government Securities (G-Secs)** involves the central and state governments redeeming their existing securities prematurely from the holders.
 - **The primary objectives** of buybacks include cost reduction, achieved by repurchasing high coupon securities, reducing the number of outstanding securities, enhancing liquidity in the G-Secs market by repurchasing illiquid securities, and injecting liquidity into the system.

India's Fiscal Update: 2023-24 Deficit and Revenue Surge

- **India's fiscal deficit for the fiscal year ending March 2024** is expected to exceed government projections, but still perform slightly better than the estimated 17.35 trillion rupees (\$207.81 billion).
 - This positive outlook is driven by higher tax receipts and strengthened non-tax revenues, as reported by a government source speaking anonymously in New Delhi. The official announcement regarding the 2023/24 fiscal deficit is scheduled for May 31st.
- **What is the Fiscal deficit?**
 - Fiscal deficit is defined as excess of total expenditure over total receipts excluding borrowings during a fiscal year
 - **Fiscal deficit = Total budget expenditure - Total budget receipts excluding borrowings**