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## Current Affairs - 23 December 2024

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### GREEN DEPOSITS



- Green deposits are **interest-bearing fixed-term deposits** where proceeds are allocated specifically towards **green finance**. These deposits are denominated only in **Indian Rupees** as per the Reserve Bank of India (RBI) framework.
  - **Purpose:** Funds raised through green deposits are directed towards **sustainable and environmentally friendly projects** such as:
    - Renewable energy projects (**solar, wind, biomass, and hydropower**).
    - **Energy efficiency and clean transportation.**
    - **Climate change adaptation and sustainable water/waste management.**
    - Development of **green buildings** and **coastal/marine environment projects.**
    - Support for **certified organic farming.**
  - **Key features:** Like regular fixed deposits, green deposits offer interest and **fixed tenure**.
  - Fund allocation is subject to an annual third-party audit to ensure compliance with green finance norms.
  - Deposits are insured under the **Deposit Insurance and Credit Guarantee Corporation (DICGC)**
  - **Priority Sector Lending (PSL):** If the green activities/projects financed align with **PSL guidelines**, they can be classified under the **priority sector**.
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### RANN UTSAV

- Rann Utsav is an **annual cultural festival** organized by the **Gujarat Tourism Department** in the **Great Rann of Kutch**, India's largest salt desert.
- It celebrates the **cultural and artistic heritage of Kutch**, attracting domestic and international tourists.

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### About the Rann of Kutch

- **Location:** The **Rann of Kutch** is a vast area of **salt marshes**, straddling the border between **India and Pakistan**.
  - It is primarily located in the **Kutch district of Gujarat**, with a smaller portion in the **Sindh province of Pakistan**.
- **Divisions:**
  - **Great Rann of Kutch:** The larger portion, stretching **east to west**.
    - Bordered by the **Thar Desert** to the north and **Kutch Hills** to the south.
  - **Little Rann of Kutch:** Located southeast of the Great Rann, extending southwards to the **Gulf of Kutch**.
- **Geographical features:** It lies close to **sea level**, connected to the **Arabian Sea** via the **Kori Creek** (west) and the **Gulf of Kutch** (east).
  - It is the **only large flooded grassland zone** in the **Indomalayan realm**, a biogeographic region extending across **South and Southeast Asia**.
- **Climate:**
  - **Summer:** Temperatures average **44°C**, peaking at **50°C**.
  - **Winter:** Temperatures can drop to **freezing levels** or below.

### Ecological significance:

- **Flora and Fauna:**
  - **Indian Wild Ass (Khur):** The **Little Rann of Kutch** is home to this endangered species.
  - Ecosystems include **mangroves, desert vegetation**, and **grass-covered patches (baits)**, vital for local wildlife.
  - The region is part of the **Wild Ass Wildlife Sanctuary**, India's **largest wildlife sanctuary**.
- **Unique biodiversity:** It supports diverse ecosystems with desert on one side and the sea on the other, fostering unique plant and animal life.



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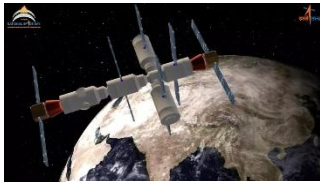
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- **Historical and cultural significance:** The Rann has seen **neolithic settlements** and later became a centre for the **Indus Valley Civilization**. It has been part of historic empires like the **Mauryas** and **Guptas**, reflecting its rich historical lineage.

### Kutch Desert:

- The **Kutch Desert** spans vast areas, bordered by:
    - **Sindh (Pakistan)** in the northwest.
    - **Arabian Sea** to the southwest.
    - **Rajasthan** in the northeast.
  - It provides an example of **Holocene sedimentation**, showcasing geological and environmental diversity.
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### SPADEX MISSION



- The **Space Docking Experiment (SpaDeX)** is a groundbreaking mission by the Indian Space Research Organisation (**ISRO**) aimed at developing **autonomous space docking technology**.
- The mission involves **PSLV-C60** as the launch vehicle to demonstrate **in-space docking technology** using two small spacecraft: **Chaser (SDX01)** and **Target (SDX02)**.
- This technology is a critical milestone for **future lunar missions**, the development of the **Bharatiya Antariksh Station (BAS)**, and other advanced space endeavours.

### Mission Overview:

- **Launch vehicle:** PSLV-C60.
- **Orbit:** 470 km circular orbit at a 55-degree inclination.
- **Separation dynamics:**
  - Target and Chaser spacecraft will separate with an initial velocity difference to achieve **10-20 km inter-satellite separation**.



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- Propulsion systems will be used to align both spacecraft into the same orbit, achieving **Far Rendezvous**.
- **Docking and demonstration:** After docking, the mission will demonstrate **electrical power transfer** before undocking for payload operations.

### What is POEM?

- **PSLV Orbital Experimental Module (POEM):**
  - Developed by **Vikram Sarabhai Space Centre (VSSC)**.
  - Repurposes the **fourth stage of PSLV** into an orbital station for scientific experiments.
  - First used in the **PSLV-C53 mission (2022)** to minimize space debris.
  - Equipped with a **Navigation Guidance and Control (NGC) system** for attitude stabilization

### Historical Context

- The concept of space docking was first achieved by the **Soviet Union** in 1967 with the docking of **Kosmos 186 and Kosmos 188**.
- SpaDeX positions India as a potential **fourth country globally** to master space docking technology.

### PANAMA CANAL



- It is a **man made waterway** that connects the **Atlantic and Pacific oceans** across the Isthmus of Panama.
- It is owned and administered by Panama, and it is 40 miles long from shoreline to shoreline.
  - It was built by the United States and **completed in August 1914**,
  - It is one of the two most strategic artificial waterways in the world, the other being the Suez Canal.

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- From its opening in 1914 until 1979, the Panama Canal was controlled solely by the United States, which built it.
  - In 1979, however, control of the canal passed to the Panama Canal Commission, a joint agency of the United States and the Republic of Panama, and complete control passed to Panama at noon on December 31, 1999.
  - It is a **sophisticated, highly-engineered system** which uses a system of locks and elevators to take ships from one end to the other.
  - This is needed because the two oceans that the Panama Canal connects do not lie at the same elevation, with the Pacific slightly higher than the Atlantic.
  - This difference means that for a ship entering the canal through the Atlantic, it needs to gain elevation during its journey to the Pacific. This is achieved **using a lock system** which lifts and drops vessels to the required sea level at either end of the canal.
  - Basically, locks are either flooded (to gain elevation) or drained (to lose elevation), and act as water elevators. In total, the system comprises three sets of locks — 12 locks in total — which are serviced using artificial lakes and channels.
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### AEROGEL



- Aerogels are among the **lightest solid materials**.
- They are created by **combining a polymer** with a **solvent to form a gel**, and then removing the liquid from the gel and replacing it with air.
- **Properties:** They are extremely **porous and very low in density** and they offer advantages like adjustable surface chemistry
- They are also known as **‘solid air’** or **‘frozen smoke’** are excellent adsorbents (a solid substance used to remove contaminants) and are incredibly lightweight solids composed mostly of air.
- Aerogels are most preferred in **environment and oil spill clean up**, for insulation purposes





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### Key facts about the newly developed Hybrid Aerogel

- Researchers have designed and synthesised aerogel: the sponge-like absorbents, light in weight and porous synthetic materials for this purpose.
- The aerogel's unique structural composition was **treated with iron nitrate salts** and maintained at room temperature for about two to five minutes.
- This specially designed aerogel was found to be **effective in extracting** and retrieving upto 99 per cent of **gold ions from the e-waste**.
- In daylight, the hybrid aerogel could extract 1689mg/gram of e-waste and 2349mg / gram under blue light.
- As there were dual processes involved, that of adsorption and reduction — the quality of the recovered gold was **reasonably pure** thereby reducing the need for further purifying processes.

### ORDER OF MUBARAK AL-KABEER



- It is the highest national **award of Kuwait**.
- It is conferred by the Kuwaiti government **on Heads of State, Sovereigns of foreign countries**, and on members of foreign royal families as a sign of friendship and goodwill.
- **History**
  - The award was **instituted in 1974**, in the memory of Mubarak Al Sabah — also known as Mubarak al-Kabeer or Mubarak the Great — who ruled Kuwait from 1896 to 1915.
  - Under his reign, Kuwait got more autonomy from the Ottoman Empire. In 1899, Mubarak signed a deal with Britain to guard his kingdom from Turkey, effectively becoming a British protectorate. Mubarak is known for playing a major role in shaping the future of Kuwait.



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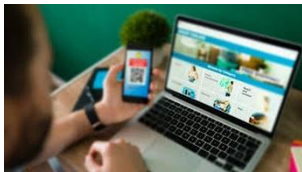


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- The design of the award changed in 1992, after Kuwait was liberated from Iraq in the year before.
- **Other recipients:** Queen Elizabeth II of England, former American Presidents George HW Bush and Bill Clinton, King Salman of Saudi Arabia, former French President Nicolas Sarkozy.

### WHAT IS A DARK PATTERN?



- Dark patterns are defined as **any deceptive design patterns** using user interface/user experience interactions on any platform.
- The term was coined by **Harry Brignull** in 2010.
- They are designed to **mislead or trick users** to do something they originally did not intend or want to do;
- It is done by subverting or impairing the consumer autonomy, decision making or choice; amounting to misleading advertisement or unfair trade practice or violation of consumer rights.
- The **Central Consumer Protection Authority** notified the Guidelines for Prevention and Regulation of Dark Patterns in 2023 and specified **13 dark patterns**, namely:
- False urgency, Basket Sneaking, Confirm shaming, forced action, Subscription trap, Interface Interference, Bait and switch, Drip Pricing, Disguised Advertisements and Nagging, Trick Wording, Saas Billing and Rogue Malwares.

### Key points about 'Jago Grahak Jago App,' 'Jagruti App,' and 'Jagruti Dashboard'

- These are part of an **intelligent cyber-physical system**, which operates in real-time and runs on the Airawat AI Supercomputer under the National Supercomputing Mission for AI and Data Analytics.
- This innovative system analyses existing text and design elements on e-commerce platforms to determine whether they are being used to influence consumer psychology.



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- **'Jago Grahak Jago App':** It provides **essential e-commerce information** about all URLs during a consumer's online activities, alerting them if any URL may be unsafe and requires caution.
  - **'Jagruti App':** It allows **users to report URLs** where they suspect the presence of one or more dark patterns declared illegal. These reports are then registered as complaints to the Central Consumer Protection Authority (CCPA) for possible redressal and subsequent action.
  - **'Jagruti Dashboard':** It is used to **generate real-time reports** on e-commerce URLs for the presence of the aforementioned dark patterns, enhancing the capability to monitor and regulate online consumer interactions effectively.
  - **Significance:** This solution will aid the CCPA in identifying dark patterns, speeding up the resolution of consumer disputes and will go a long way in curbing practices that are detrimental to consumer interests.
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### WHAT IS A SPEED GUN?



- It is a device to **measure the speed of a moving object** without having to be in contact with the object.
- To achieve this, the device bounces electromagnetic radiation of a specific frequency off the object, capturing the reflection and **using the Doppler effect to infer the object's speed.**
- Speed guns are electronic, and use complex circuitry to emit the radiation used to make the measurement.
- The speed gun was originally **developed during World War II** for military use and applies the effect using radio waves rather than sound waves.
- **How it works?**
  - A speed gun has a **radio transmitter and a receiver.**





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- The transmitter emits **radio waves**, which the person holding the speed gun can direct at an object. The receiver collects the waves reflected by the object back in the direction of the speed gun.
  - If the object is **approaching the speed gun**, the frequency of the returning waves will be slightly higher than that of the transmitted waves. A simple computer in the gun can deduce the object's speed based on this difference.
  - **How are the speed and the effect linked?**
    - All electromagnetic waves have a fixed speed — equal to the speed of light in that medium.
    - In vacuum, this value is denoted  $c$ : 299,792,458 m/s. Any change in the frequency the speed gun detects directly corresponds to the Doppler shift caused by the object's motion.
    - This principle is powerful because it allows the speed gun to work accurately over a wide range of distances and velocities without being affected by air resistance.
    - A speed gun can **calculate the speed of a moving object** by multiplying the difference (between received and emitted frequencies) with  $c$  and dividing by the emitted frequency times 2.
    - This relationship shows how the **difference is directly proportional to the speed of the object**: the faster it moves, the more pronounced the difference will be.
  - **Uses:** It is widely used by **law enforcement officials** to monitor traffic speed, by coaches to gauge the performance of their athletes, and in various other industries in need of accurate motion tracking.
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