

Current Affairs search results for tag: science-and-technology

### **1. India launches 'Hello UPI' and 'Bharat BillPay Connect' for voice-activated conversational payments. ( Sept. 9, 2023 )**

- National Payments Corporation of India (NPCI) launched two conversational payments initiatives: 'Hello UPI' and 'Bharat BillPay Connect.'

#### **An Overview of the News**

- These initiatives were unveiled at the Global Fintech Fest with the goal of increasing user convenience and accessibility in digital transactions.

#### **'Hello UPI':-**

- 'Hello UPI' enables users to make payments through interactive interactions using their smartphones.
- It simplifies various payment tasks, including splitting restaurant bills, sending money to friends, and settling utility bills.

#### **Multilingual Access:**

- NPCI's 'Hello UPI' supports voice-enabled UPI payments in both Hindi and English.
- There are plans to expand language support to include other regional languages, ensuring inclusivity for a wider user base.

#### **Collaborative Development:**

- NPCI collaborated with the Bhashini Program at IIT Madras and AI4India to jointly develop a payment language model in Hindi and English.
- This collaboration promotes the advancement of indigenous technology and contributes to the success of these interactive payment initiatives.

#### **Bharat BillPay Connect:-**

- **Streamlining Bill Payments:** BillPay Connect aims to streamline the bill payment process by enabling users to easily pay their bills using natural interactions with popular voice assistants like Alexa.
- **Accessibility for all users:** This initiative is designed to cater to a wide range of users with different levels of technical proficiency. Whether individuals have access to a feature phone, smartphone, or merchant soundbox, digital bill payment has become accessible to all.
- **Instant Voice Confirmation:** Users can easily retrieve and settle their bills through voice commands on smart home devices and receive instant voice confirmation. Additionally, this facility extends to bill payments made at physical collection centers through Payment Soundbox devices.

## **2. India's first solar city inaugurated in Madhya Pradesh's Sanchi ( Sept. 8, 2023 )**

Madhya Pradesh (MP) Chief Minister Shivraj Singh Chouhan inaugurated Sanchi in Raisen district as India's first solar city.

### **An Overview of the News**

- The initiative is in line with Prime Minister Narendra Modi's vision of developing a solar city in every state by 2070.

### **About Sanchi Solar City:**

- Sanchi Solar City has two solar plants - **a 3 MW solar plant at Nagauri** and a **5 MW solar plant at Gulgaon**, which cater to the city's power and agricultural needs.
- Currently, an 8 MW grid-connected solar plant is under construction within Sanchi city.
- **Madhya Pradesh Urja Vikas Nigam Limited (MPUVNL)** acted as the nodal agency for this solar city project.
- MPUVNL launched an '**Energy Literacy Campaign**' to educate the people of **Sanchi about energy-saving practices**.
- Sanchi Solar City is expected to reduce annual carbon dioxide emissions by about 13,747 tonnes, which is equivalent to the effect of planting more than 2 lakh adult trees.
- The project is expected to save over Rs 7 crore annually in energy-related expenses for both the government and citizens.

### **Initiatives under the Sanchi Solar City Project:**

- Electric vehicle charging stations have been set up across the city to promote the adoption of electric vehicles.
- Public establishments have been fitted with rooftop solar systems to harness solar energy.
- Individual rooftop owners have also installed solar systems on their premises, thereby reducing their dependence on grid electricity.

### **National Renewable Energy Target:**

- India has set a target of generating 40% of its total installed electricity generation capacity from renewable sources by 2030.

### **About Sanchi:**

- Sanchi is famous for its Buddhist Stupa, which is recognized as a UNESCO World Heritage Site.
- The Great Stupa of Sanchi was built by Emperor Ashoka in the 3rd century BC.

**Important Point:-** In October 2022, Prime Minister Narendra Modi declared Modhera village in Gujarat as India's first 24x7 solar-powered village.

### **About Madhya Pradesh**

- It is the second largest state of India by area after Rajasthan.
- Forests occupy 25.14 percent of its area.
- Governor - **Mangubhai Patel**
- Chief Minister - **Shivraj Singh Chauhan**
- Capital - **Bhopal**

### **3. India unveils the world's first AI-powered anti-drone system - Indrajal by Grene Robotics ( Sept. 5, 2023 )**

Hyderabad-based robotics company Grene Robotics developed Indrajal, an innovative autonomous anti-drone system powered by artificial intelligence (AI).

#### **An Overview of the News**

- The Indrajal system is the first of its kind in India and is designed to protect critical facilities such as nuclear installations and oil rigs, as well as large areas, potentially entire cities, from various drone threats.

#### **Key Features of Indrajal - Autonomous Drone Defense Dome:**

- This revolutionary system named "Indrajal" got global recognition.
- It offers an impressive coverage range of up to 4,000 square km per unit, providing comprehensive protection against a variety of drones.
- Indrajal uses cutting-edge technology and is a significant advancement in drone defense technology.

#### **Importance of "Made in India" Indrajal:**

- Indrajal has been completely developed in India, showcasing the country's capabilities in technology and defense.
- This is a result of Indian talent and resources, highlighting the country's growing strength in the region.

#### **Modular Design with AI Integration:**

- Indrajal has a modular design similar to Lego blocks, consisting of 12 different layers of technology, all powered by artificial intelligence.
- It provides 360-degree protection with real-time capabilities to detect, identify, classify, track, and neutralize threats.

- Systems can respond to threats in a very short time frame, with threat lifetimes ranging from 30 seconds to a few minutes.

### **Unique Positioning as a Wide-Area Counter-Unmanned Aircraft System (C-UAS):**

- Indrajal is the world's only wide-area counter-unmanned aircraft system (C-UAS).
- It offers an integrated security solution that effectively addresses mobile threats, which traditional static defense systems struggle to combat.

## **4. ISRO's Aditya L1 Solar Mission Successfully Completes Second Earth Orbit Maneuver ( Sept. 5, 2023 )**

The Indian Space Research Organization (ISRO) announced the successful completion of the second Earth orbit-raising maneuver for the Aditya L1 solar mission.

### **An Overview of the News**

- ISRO's **Telemetry, Tracking, and Command Network (ISTRAC)** carried out the operation.
- As a result of this maneuver, the **Aditya L1 spacecraft moved from its previous orbit, which was 282 by 40,225 km around the Earth, to a new orbit of 245 by 22,459 km around the Earth.**
- The Aditya L1 mission will undergo a total of four Earth-orbital maneuvers before being placed in a transfer orbit towards its destination, the Lagrange point L1. The process is expected to take 125 days.
- The **third Earth-bound maneuver is scheduled for 2:30 a.m. on September 10.**
- The primary objective of the Aditya L1 mission is **to provide valuable information about the solar corona and to make in-situ observations of the solar wind at the L1 point, which is located approximately 1.5 million kilometers from Earth.**
- The mission was **successfully launched on 2 September using the Polar Satellite Launch Vehicle C57.**

### **Objectives and scope of Aditya L1 mission**

- The primary objective of the Aditya L1 mission is **to conduct a comprehensive study of the solar wind and the Sun's atmosphere.**
- The satellite carries seven different payloads to observe different layers of the Sun, including the **photosphere, chromosphere, and outermost corona.**
- The mission aims **to enhance our understanding of several solar phenomena, such as coronal heating, coronal mass ejection (CME), pre-flare and flare activities, as well as the dynamics of solar weather.**

- Additionally, the mission will contribute to the investigation of particle and field propagation within the interplanetary medium.

**Indian Space Research Organization (ISRO):**

- It was established on **15 August 1969**.
- It is the national space agency of India. It launched its space rocket from the Satish Dhawan Space Center in Sriharikota, Andhra Pradesh.
- Headquarters - **Bengaluru**
- Chairman - **S Somnath**

**5. PM announces full capacity operation of India's largest domestically built 700 MW nuclear power plant at Kakrapar ( Sept. 3, 2023 )**

On August 31, 2023, Prime Minister Narendra Modi announced the commencement of full-capacity operations at India's largest domestically built 700 MW nuclear power plant located at Kakrapar in Gujarat.

**An Overview of the News**

- The nuclear facility at Kakrapar is the largest nuclear facility of its kind to be built entirely within India.
- Initially, the **Kakrapar Atomic Power Project (KAPP)** started commercial operations on 30 June but was operating at 90% capacity.
- It reached its maximum operational capacity on 31 August.

**Nuclear power development in Kakrapar and all over India:-**

- Nuclear Power Corporation of India Limited (NPCIL) is responsible for the construction of two 700 MW Pressurized Heavy Water Reactors (PHWR) at Kakrapar in Gujarat.
- Kakrapar also has **two power plants of 220 MW each**.
- NPCIL currently operates **23 commercial nuclear power reactors**.

**Future plans and projects:-**

- KAPP Unit 4 had achieved 97.56% progress as of July while commissioning activities were in progress.
- NPCIL has plans to build 16 more PHWRs of 700 MW each across the country and has secured financial and administrative approvals for these projects.
- Other 700 MW nuclear power plant projects are in progress at **Rawatbhata, Rajasthan (RAPS 7 & 8), and Gorakhpur, Haryana (GHVP 1 & 2)**.

- The government has approved the construction of 10 indigenously developed PHWRs in fleet mode at four locations: **Gorakhpur (Haryana), Chutka (Madhya Pradesh), Mahi Banswara (Rajasthan), and Kaiga (Karnataka).**

## **6. India's Aditya-L1 Solar Observatory Mission Launched Successfully ( Sept. 2, 2023 )**

On 2 September 2023, India's first solar observatory mission, Aditya-L1, was successfully launched from the Sriharikota Space Centre.

### **An Overview of the News**

- The mission took off at sharp 11:50 a.m., setting off on a 125-day journey to study the Sun.
- The PSLV C57, an XL version with extended strap-on motors and higher fuel capacity, was used for this mission.
- All flight parameters were normal, ensuring a safe start of the mission.
- Aditya L1 will reach the Lagrange 1 point in four months, where unique gravitational forces are at work.

### **Objectives and scope of Aditya L1 mission**

- The primary objective of the Aditya L1 mission is **to conduct comprehensive studies of the solar winds and the Sun's atmosphere.**
- The satellite carries seven different payloads whose task is **to observe different layers of the Sun, including the photosphere, chromosphere and the outermost corona.**
- The mission aims to increase our understanding of many solar phenomena, such as **coronal heating, coronal mass ejections (CMEs), pre-flare and flare activities, as well as solar weather dynamics.**
- Additionally, the mission will contribute to the investigation of particle and field propagation within the interplanetary medium.

### **Indian Space Research Organization (ISRO):**

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### **Important Points:**

- Since 1999, India has successfully launched 431 foreign satellites from 36 different countries using its indigenous rockets.
- Most of these satellite launches were done using the PSLV (Polar Satellite Launch Vehicle) rocket.
- Notably, the **PSLV rocket** achieved a remarkable feat by **deploying 104 satellites into orbit in a single flight**.

## **7. ISRO's Chandrayaan-3 Pragyan Rover Confirms Presence of Sulfur on Moon ( Aug. 31, 2023 )**

The Indian Space Research Organization (ISRO) confirmed the presence of sulfur on the Moon's surface through the Pragyan rover module of Chandrayaan-3.

### **An Overview of the News**

- This important discovery is the result of in-situ recordings made near the Moon's south pole.
- The confirmation of sulfur has essential implications for understanding the elemental composition of the Moon and its geological history.

### **About Pragyan Rover**

- **Lunar Rover:** Pragyan is a lunar rover designed by the Indian Space Research Organization (ISRO) as a component of the lunar exploration project Chandrayaan-3.
- **Previous attempt:** In an earlier attempt, an earlier version of the rover was included in the Chandrayaan-2 mission. Launched on July 22, 2019, the rover was lost along with its lander Vikram due to an accident on the Moon on September 6.
- **Chandrayaan-3 Launch:** The next mission, Chandrayaan-3, was launched on July 14, 2023. It carried updated versions of both the Vikram lander and the Pragyan rover.
- **Successful Landing:** The Chandrayaan-3 mission was crowned with success when its Vikram lander and Pragyan rover successfully landed around the Moon's south pole on August 23.

## **8. World's first ethanol-powered car unveiled by Union Minister Nitin Gadkari ( Aug. 29, 2023 )**

Union Minister Nitin Gadkari unveiled the world's first car that runs entirely on ethanol in New Delhi, marking a historic moment for India's energy landscape.

### **An Overview of the News**

- The car is the **first Stage-II BS-VI electrified flex-fuel vehicle**, which runs entirely on ethanol as a fuel source.

- Currently, India's oil import bill stands at Rs 16 lakh crore, which highlights the need to curb this expenditure.
- Addressing environmental concerns, Minister Gadkari underlined the need for sustainable solutions, stressing that 40 percent of pollution is generated from the transport sector.
- Ethanol blending not only reduces pollution but also has the potential to increase India's agricultural growth by 12 to 20 percent, thereby creating several employment opportunities.

### **Significant Benefits of Ethanol Blending**

- **Financial savings:** Estimated annual savings of Rs 35 thousand crore in import cost through the implementation of 20 percent ethanol blending.
- **Exceeding targets:** India achieved 10 percent ethanol blending ahead of its 2022 target, leading to a revised target of 20 percent ethanol blending by 2026, five years ahead of the original target of 2030.
- **Accelerated timeline:** To further promote ethanol blending, the government has accelerated its timeline and increased the target of achieving 20 per cent ethanol blending in petrol from 2030 to 2025.
- **Nationwide Availability:** There is a plan to make 20 percent ethanol blended petrol (E20) widely accessible across India by 2025.

### **Advances in ethanol blending and its benefits**

- **History of Biofuel Blending:** Government efforts to integrate biofuel blending began earlier, with a limited success rate of 1.53 percent under the previous administration.
- **Remarkable progress:** The present government has increased the ethanol blending from 1.53 percent to 10.17 percent by July 2022, which shows substantial progress in this initiative.
- **Empowering farmers:** Ethanol blending has contributed to farmers earning Rs 82,000 crore, in line with Prime Minister Narendra Modi's vision of a self-reliant India.
- **Flex-Fuel Technology:** The newly introduced flex-fuel technology allows higher levels of ethanol blending in petrol, over 20 percent. The technology aims to reduce carbon emissions, promote sustainable mobility, and reduce dependence on conventional fuel sources.

Minister of Petroleum and Natural Gas - **Hardeep Singh Puri**

### **9. Aditya-L1 Space Observatory: Studying the Sun from Space ( Aug. 29, 2023 )**

The Indian Space Research Organization (ISRO) is set to launch Aditya-L1, India's first space-based observatory designed to study the Sun.

### **An Overview of the News**

- The launch is scheduled for 2 September 2023 at 11:50 a.m. from the **Sriharikota Space Station in Andhra Pradesh**.
- ISRO will use the **Polar Satellite Launch Vehicle-C57 (PSLV-C57)** for the Aditya L1 mission.
- The satellite will be placed in a halo orbit around the Lagrange point L1 within the Sun-Earth system, which is located approximately **1.5 million kilometers from Earth**.
- The journey to reach the Lagrange point is estimated to take about four months.
- A major advantage of this halo orbit around the L1 point is that it provides an unobstructed view of solar activity, without interference from astronomical events such as eclipses.

### **Objectives and Scope of Aditya L1 Mission**

- After the success of Chandrayaan 3, ISRO has launched the ambitious **Aditya L1 mission**.
- The primary objective of the Aditya L1 mission is **to conduct a comprehensive study of the solar wind and the Sun's atmosphere**.
- The satellite will carry seven different payloads aimed at observing different layers of the Sun, including the **photosphere, chromosphere, and outermost corona**.
- The mission aims **to enhance our understanding of several solar phenomena, such as coronal heating, coronal mass ejection (CME), pre-flare and flare activities, as well as the dynamics of solar weather**.
- Additionally, the mission will contribute to the investigation of particle and field propagation within the interplanetary medium.

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### **10. First ABDM Microsite Launched in Mizoram ( Aug. 26, 2023 )**

National Health Authority (NHA) inaugurated the ABDM microsite in Aizawl, Mizoram as part of the 100 microsites project.

### **An Overview of the News**

- The objective of the ABDM microsite is **to accelerate the adoption of Ayushman Bharat Digital Mission (ABDM) across India.**
- Mizoram is the lead state operating the ABDM microsite.
- The initiative aims to transform health facilities including **private clinics, small hospitals, and laboratories** into ABDM-enabled establishments that provide digital health services.

### **Appointment of Interfacing Agency in Mizoram**

- The implementation of the ABDM microsite in Aizawl has been entrusted to **"Youth for Action"** appointed as the interfacing agency.
- His role includes overseeing the successful execution of the ABDM microsite at Aizawl.

### **Significance of the 100 Microsites Project**

- CEO of NHA underlines the paramount importance of the 100 microsites project under ABDM.
- This initiative has the potential to revolutionize healthcare digitization and encourage active participation of small and medium-scale healthcare providers.

### **Enhanced Patient Experience**

- Patients can seamlessly link their health records with **Ayushman Bharat Health Accounts (ABHA).**
- Access and sharing of health records is facilitated through ABDM-enabled personal health record (PHR) applications on mobile devices.

### **Learning from Pilot Projects**

- Previous pilot projects in Mumbai, Ahmedabad, and Surat have contributed to shaping the architecture of the wider 100 Microsites project under ABDM.
- States like **Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Maharashtra, and Chhattisgarh** are also making significant progress in implementing ABDM microsites.