

India Bans Import of Drones

❖ Context

- Recently, the government banned the import of drones with immediate effect, **except for research and development, defense and security purposes.**

❖ Key Highlights

- This move by the Center is aimed at encouraging 'Made in India' drones, to **push the budding local industry to ramp up production.**
- It also effectively **blocks a developing market** for the world's top drone-maker — China's SZ DJI Technology Co.
- However, the government has **not restricted the import of drone components**, in order to boost domestic manufacturing of drones.(will not require any approvals.)
- **Indian Drone Market**
 - The domestic market of drones is estimated to account for about **4.25 per cent of the global drone market**, worth about \$28.5 billion (approx. Rs 215 crore) in FY22.

❖ Efforts Made to Boost Domestic Drone Market

- Last year, the Ministry notified **liberalized drone rules** that abolished a slew of approvals with the aim to encourage R&D and create India as a drone hub.
 - The government also approved a **Production-Linked Incentive (PLI) scheme** for drones and their components with an allocation of ₹120 crore for three financial years.
 - Last month, the Ministry of Civil Aviation (MoCA) sent a note on use of drones across various sectors to different ministries at the center.
- ### ❖ Significance
- Drones offer **tremendous benefits** to almost every sector of the economy, including but not limited to, national defense, agriculture, law enforcement, and mapping, among others.

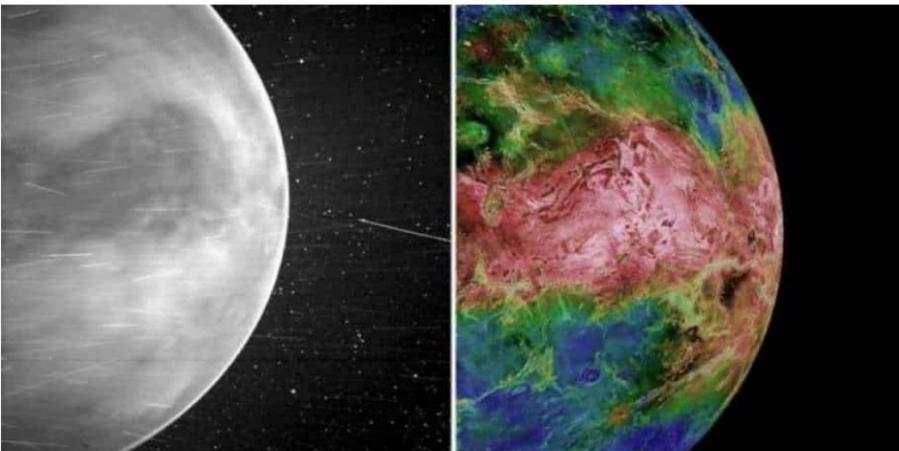
Parker Solar Probe

❖ Context

- Recently, a video and some pictures of the **surface of Venus** have been released by NASA.
- These were taken last year by the **Parker Solar Probe** on a flyby.

❖ Key Highlights

- In 2020 and 2021, the Parker Solar Probe (PSP) of the US space agency took the **images on two flybys of Venus.**
- The probe revealed a **faint glow from the surface** that shows distinctive features like **continental regions, plains, and plateaus.**
- A **luminescent halo of oxygen** in the atmosphere can also be seen surrounding the planet.

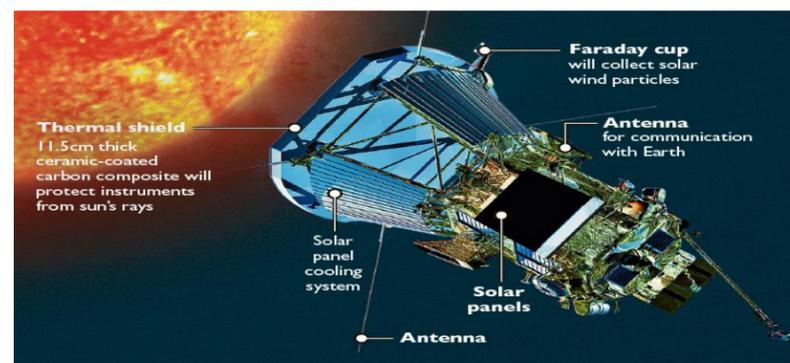


• Significance

- The first images of this kind may **help in learning** more about the most **earth-like planet** in the solar system.
- Venus is the **third brightest thing in the sky**, but until recently we have **not had much information** on what the surface looked like because our view of it is blocked by a thick atmosphere.

❖ About Parker Solar Probe

- Parker Solar Probe was **launched in 2018.**
- The spacecraft will fly close enough to the Sun to **watch the solar wind speed up from subsonic to supersonic**, and it will fly through the birthplace of the highest-energy solar particles.
- The spacecraft and instruments are being **protected from the Sun's heat** by a **4.5-inch-thick carbon-composite shield**, which can withstand temperatures outside the spacecraft that reach nearly 1,377 degrees Celsius.
- **Parker Solar Probe will use Venus' gravity during seven flybys** over nearly seven years to gradually bring its orbit closer to the sun.
- The spacecraft will fly through the sun's atmosphere as close as 3.9 million miles to our star's surface, well within the orbit of Mercury and more than seven times closer than any spacecraft has come before.



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ABHA

❖ Context

- The **National Health Authority (NHA)** under its flagship scheme of **Ayushman Bharat Digital Mission (ABDM)** announced its integration with Aarogya Setu health app.

❖ Key Highlights

- This integration takes the benefits of a **14-digit unique ABHA (Ayushman Bharat Health Account) number** to the Aarogya Setu user base.
- Under the ABDM, a **user can generate their unique ABHA number** using their Aadhaar number/DL/Mobile no and some basic demographic details like Name, Year of Birth (or Date of Birth), Gender and address (auto-populated once the user authenticates via Aadhaar OTP).
- They can use the ABHA number.
 - **To link their existing and new medical records** including doctor prescriptions, lab reports, hospital records etc.
 - **Share** these records with registered health professionals and health service providers.
 - **Access** other digital health services whilst maintaining a common pool of medical history.

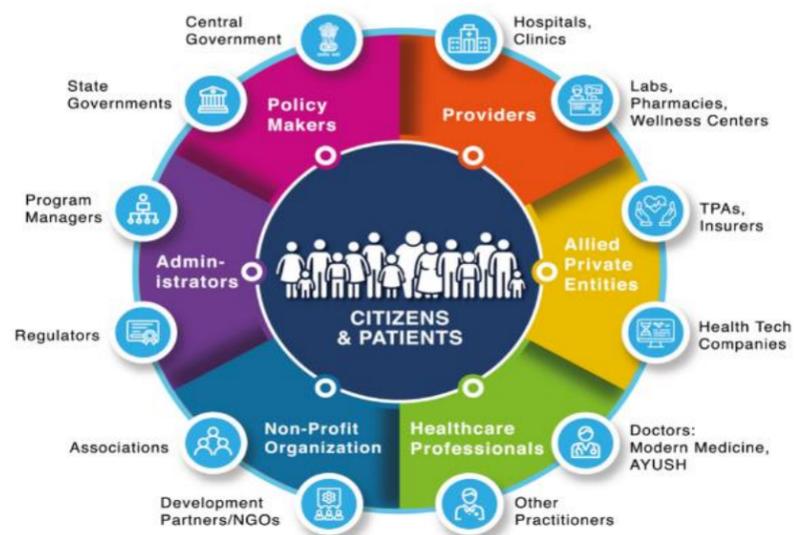
❖ National Health Authority & AB-PMJAY

- The **National Health Agency** was **reconstituted** as the **National Health Authority** in January 2019 to implement public health insurance/assurance scheme **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**.
- The NHA is governed by a **Governing Board chaired by the Union Minister for Health and Family Welfare**.
- It is the **largest health assurance scheme** in the world which aims at providing a **health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization** to over **10.74 crores poor and vulnerable families** (approximately 50 crore beneficiaries) that form the bottom 40% of the Indian population.
- The households included are based on the deprivation and occupational criteria of **Socio-Economic Caste Census 2011 (SECC 2011)** for rural and urban areas respectively.

- **PM-JAY** was earlier known as the **National Health Protection Scheme (NHPS)** before being rechristened. It subsumed the then existing **Rashtriya Swasthya Bima Yojana (RSBY)** which had been launched in 2008.

❖ ABDM

- The **Ayushman Bharat Digital Mission (ABDM)** aims to develop the backbone necessary to support the **integrated digital health infrastructure** of the country. It will bridge the existing gap amongst different stakeholders of healthcare ecosystem through digital highways.



- A **Public Health Record (PHR)**, under ABDM, is an electronic record of health-related information on an individual that **conforms to nationally recognized interoperability standards** and that can be drawn from multiple sources.
- The **most salient feature** of the PHR, and the one that distinguishes it from the EMR and EHR, is that the **information it contains is under the management & control of the individual**.

News in Between the Lines

Electrochemical Methanol Reformation

❖ Context

- Indian Scientists of International **Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)**, autonomous institute under DST have developed a **method to produce hydrogen with high purity (99.99%) from methanol-water mixture** at ambient pressure and temperature that uses only **one-third of the electrical energy** required in water electrolysis.

❖ Key Highlights

- Hydrogen can be an ideal sustainable energy carrier with **near-zero or zero end-use emissions**
- It is gaining much attention due to its **high specific energy value of 40 kWh/kg** as compared to chemical fuels like gasoline, diesel, liquid petroleum gas (12-14 kWh/kg).

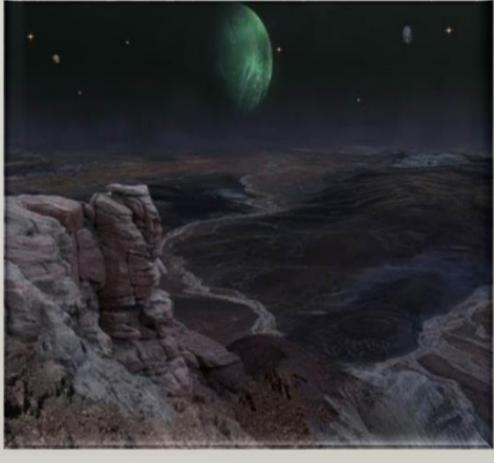
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- The **most abundant raw material** containing hydrogen is **water**. It is also present in natural gas, petroleum, and biomass, and they can form the source for generation of hydrogen.
- **Water electrolysis and reformation** of hydrocarbons like methane are **common methods** for production of hydrogen.
- In the reformation method, under the influence of a catalyst, **methane reacts with high-temperature steam (700°C–1000°C)** (at the pressure of 300–2500 kPa) to mainly produce **carbon monoxide, hydrogen** and a relatively minor fraction of **carbon dioxide**. Reforming of steam requires heat, which means that the process is **endothermic**.
- Scientists combine both the processes of electrolysis and reformation to produce hydrogen with the new method
- In this process, which uses **polymer electrolyte membrane (PEM)**, hydrogen can be produced at a **lower temperature (25-60 degree C) and pressure**, unlike chemical reformation.
- Hydrogen separation or purification steps are not required since it is being well separated from CO₂ by the polymer membrane used in the system.

MSMBTAI



❖ Context

- Utilising an **Artificial Intelligence-based algorithm**, Indian Astronomers of **Indian Institute of Astrophysics & BITS Pilani** have devised a new approach for **identifying potentially habitable planets** with a **high probability**.

❖ Key Highlights

- The method is based on the postulate that **Earth is an anomaly, with the possibility of existence of few other anomalies** among thousands of data points.
- The AI-based method, named **Multi-Stage Memetic Binary Tree Anomaly Identifier (MSMBTAI)**, is based on a novel **multi-stage memetic algorithm (MSMA)**.
- MSMA uses the generic notion of a **meme**, which is an **idea or knowledge that gets transferred from one person to another by imitation**. A meme indicates cross-cultural evolution in posterity and, therefore, can induce new learning mechanisms as generations pass.
- The algorithm can act as a **quick screening tool** for evaluating habitability perspectives from observed properties.
- The **study identified a few planets which exhibit similar anomalous characteristics as Earth** via the proposed technique, which shows reasonably good results, in agreement with what astronomers believe.

National Centres of Excellence in Carbon Capture & Utilization



❖ Context

- Two **National Centres of Excellence** in Carbon Capture and Utilization are being established in India.

❖ Key Highlights

- The two Centres, namely the **National Centre of Excellence in Carbon Capture and Utilization (NCoE-CCU)** at **IIT Bombay** and the **National Centre in Carbon Capture and Utilization (NCCCU)** at **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru** are being set up with support from the DST
- These **CoEs** will facilitate capturing & mapping of current **R&D** and innovation activities in the domain and develop networks of researchers, industries and stakeholders with coordination and synergy between partnering groups and organizations.
- The **NCoE-CCU at IIT Bombay**:
 - Will work on the **conversion of captured carbon dioxide to chemicals**, CO₂ transport, compression and utilization, as well as on enhanced hydrocarbon recovery as co-benefit pathways.





- Will also **develop and demonstrate efficient CO2 capture from representative flue gas** from the effluents of power plant and biogas plant.
- The NCCCU at JNCASR, Bengaluru
 - Will work on **reaching technology readiness level** on par with the **commercial requirement** at the industry level.
 - Will provide training and consultancy and **translate its research excellence into solutions** with global economic and social impact.
- **CCU aligns with five** of the seventeen sustainable development goals (SDGs), namely, **climate action; clean energy, industry, innovation & infrastructure; responsible consumption and production; and partnerships to achieve the goals.**

Vigyan Jyoti Scheme



❖ Context

- Recently, the Govt said that the **Vigyan Jyoti programme is being implemented in 100 schools** of the country and all the schools are situated in rural areas.

❖ Key Highlights

- Since the inception, **around 1820 tribal girls have been benefited** under Vigyan Jyoti Programme.
- It aims to tap **100 girl students in 550 districts** from 2020-2025, the students will be chosen based on their percentile

❖ About Scheme

- It is **intended to create a level-playing field for the meritorious girls** in high school to pursue Science, Technology, Engineering, and Mathematics (STEM) in their higher education.
- It also offers exposure for girl students from the rural background to help to plan their journey from school to a job of their choice in the field of science.
- **Implemented by-** Department of Science & Technology (DST) with **Navodaya Vidyalaya Samiti (NVS).**
- **Activities under the scheme-** Various activities such as science camps, special lectures/ classes, counselling of students and parents, interaction with role models, tinkering activities, and visits to Knowledge Partners/ Research Labs are being conducted in order to motivate girls.

International Day of Women and Girls in Science



❖ Context

- Recently, **The United Nations General Assembly** declared February 11, 2022 as the **International Day of Women and Girls in Science.**

❖ Key Highlights

- **Theme for 2022-** Equity, Diversity and Inclusion: Water Unites Us
- A significant **gender gap has been prevailing** at all levels of Science, Technology, Engineering and Mathematics (STEM) across the world.
- Under-representation of women still exists in these fields, even though women have made tremendous participation and progress in career.
- Therefore, the Commission on the Status of Women adopted a **report which called for participation of women in STEM** and for the "promotion of women's equal access to full employment and work".
- **Women in Science**
 - **Janaki Ammal (1897 - 1984)-** Famous botanist and the first scientist to receive the Padma Shri award in 1977.
 - **Kalpna Chawla (1962 - 2003)-** First Indian Astronaut who flew in Space Shuttle Columbia in 1997.
 - **M Vanitha & Ritu Karidhal-** The women behind the Chandrayaan 2.
 - **Prof Sarah Gilbert-** A professor of vaccinology at Oxford university.
 - **Gitanjali Rao-** 15-year-old Gitanjali Rao was recognised for works involved to tackle issues ranging from contaminated drinking water to opioid addiction and cyberbullying.

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Reimagining Healthcare in India through Blended Finance



❖ Context

➤ Recently, **NITI Aayog** released its report titled 'Reimagining Healthcare in India through Blended Finance', recently.

❖ Key Highlights

- The report has said that about **65 percent of hospital beds in the country cater to almost 50 per cent of the population.**
 - It stressed that the number of beds must be increased by at least 30 per cent to ensure equitable access to healthcare facilities for people.
- NITI Aayog highlighted that, **India's healthcare spending is least among BRICS countries.**
- Hospital sector in India accounts for 80 percent of the total healthcare market. In the financial year 2017, it was valued at USD 61.79 billion, which is likely to reach USD 132 billion by 2023.
- As per report, health insurance contributes 20 per cent to the non-life insurance business. This makes it the second largest portfolio.

Coastal Vulnerability Index



❖ Context

➤ **Indian National Centre for Ocean Information Services (INCOIS)** has carried out coastal vulnerability assessment for the entire Indian coast at States level to bring out an Atlas comprising 156 maps on 1:1,00,000 scales to prepare a **Coastal Vulnerability Index (CVI)**.

❖ Key Highlights

- The CVI uses the relative risk that physical changes will occur as **sea-level rises**
- A coastal **Multi-Hazard Vulnerability Mapping (MHVM)** was also carried out using parameters like sea level change rate, shoreline change rate, high-resolution coastal elevation, extreme water level from tide gauges and their return periods. INCOIS was established as an autonomous body in **1999** under the **Ministry of Earth Sciences (MoES)** and is a unit of the Earth System Science Organization (ESSO)

Kaziranga National Park is a net carbon emitter



❖ Context

➤ **Kaziranga National Park** in Assam, home to the largest-population of the **one-horned rhinoceros** in the world, is **releasing more carbon than it is absorbing.**

➤ This is according to latest research conducted by a group of scientists from the **Indian Institute of Tropical Meteorology, Pune, Maharashtra and Tezpur University in Tezpur, Assam.**

❖ Key Highlights

- Forests absorb more carbon than they release, which makes them **carbon sinks** and they are globally promoted to counter the **carbon dioxide emissions** from different **human activities.**
- Releases more carbon than it absorbs lies in the unique soil of the **deciduous forest.** The soil is home to a **large population of bacteria** that release carbon dioxide as they breathe, which adds to the carbon dioxide being emanated by other organisms, including trees.
- The researchers had set up a **meteorological tower** inside the national park in 2015 to conduct the study. It was equipped with various sensors and instruments to monitor carbon dioxide levels, water vapour concentrations, wind speeds and directions (a technique known as **Eddy Covariance Measurement.**) This was done under the **MetFlux India project** sponsored by the **Union Ministry of Earth Sciences.**
- The scientists analysed the **isotopes** in the transpired water and observed a strong link between the **water and carbon cycles** of the forest.
- They also witnessed a decreasing trend in the rainfall coming from the transpired water in the **pre-monsoon** months which are **responsible for the highest carbon absorption.**

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