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State of Global Air 2020: HEI

Why in News

Recently, a global study, **State of Global Air 2020** (SoGA 2020) has been released by the **Health Effects Institute** (HEI).

- It highlights that **air pollution is the largest risk factor for death** among all health risks and it is the **first-ever comprehensive analysis of air pollution's global impact on newborns**.
- HEI is an **independent, nonprofit research institute** funded jointly by the USA's Environmental Protection Agency and others.

Key Points

- **India, Bangladesh, Pakistan and Nepal** are among the top ten countries with the **highest PM_{2.5} (particulate matter) exposures in 2019** and all of these countries experienced increases in outdoor PM_{2.5} levels between 2010 and 2019.
- **India is also among the top ten** countries with **highest ozone (O₃) exposure in 2019**. Also, among the **20 most populous countries**, **India recorded the highest increase (17%) in O₃ concentrations** in the past ten years.
- **Long-term exposure to outdoor and household (indoor) air pollution** contributed to over 1.67 million annual deaths from stroke, heart attack, **diabetes**, lung cancer, chronic lung diseases, and **neonatal diseases**, in **India in 2019**.
- **Important Government Initiatives:**
 - **Pradhan Mantri Ujjwala Yojana** (Household LPG programme).
 - **National Clean Air Programme**.
 - Introduction of **BS-VI** emission standards.
 - Implementation of the **Graded Response Action Plan** (GRAP).

- **Infant Related Data:**

- High PM contributed to the **deaths of more than 1,16,000 Indian infants** who did not survive their first month.

Infants in the first month of life are already at a **vulnerable stage** and a growing body of scientific evidence-supported studies in India indicates that **particulate air pollution exposure during pregnancy is linked to low birth weight and preterm birth.**

- More than half of these deaths were associated with **outdoor PM2.5** and others were linked to the **use of solid fuels such as charcoal, wood, and animal dung for cooking.**

Although there has been a **slow and steady reduction in household reliance on poor-quality fuels**, the air pollution from these fuels continues to be a key factor in the deaths of these youngest infants.

- **Significance of the Study:**

Addressing impacts of air pollution on adverse pregnancy outcomes and newborn health is **important for low- and middle-income countries**, not only because of the high prevalence of low birth weight, preterm birth, and child growth deficits but because it **allows the design of strategic interventions** that can be directed at these vulnerable groups.

- **Air Pollution and Covid-19:**

- Although the link between air pollution and **Covid-19** is not completely established, there is **clear evidence linking air pollution and increased heart and lung disease.**
- Also, there is growing **concern that exposure to high levels of air pollution during winter** months in South Asian countries and East Asia could **exacerbate the effects of Covid-19.**

- **Current Pollution Status:**

- **Average pollution levels in India are declining** over the past three years but these have been **marginal**, particularly in the **Indo-Gangetic plains which see extremely high PM pollution especially during winter.**
- After a **decline in pollution due to the nationwide lockdowns** after March, pollution levels are again rising and **air quality is dipping to the 'very poor' category** in several cities.

Source: IE

ECI Committee on Expenditure Limit

Why in News

Recently, the **Election Commission of India** (ECI) has constituted a **committee to examine the issues concerning the expenditure limit for a candidate.**

Key Points

- **About the Committee:**

It has been tasked with **assessing the change in the number of electors** across states/UTs and the **change in the Cost Inflation Index (CII)** and their bearing on expenditure pattern of candidates in recent elections.

- **Background:**

- **Political parties** in the feedback to the Commission had **asked for an increase in the expenditure** of Bihar assembly elections to meet the **increased digital campaign expenses** amid the **Covid-19 pandemic**.
- The Ministry of Law and Justice notified an **amendment in Rule 90 of Conduct of Elections Rules, 1961**, which **enhanced the existing expenditure limit by 10%**, applicable with **immediate effect**.

- **Earlier Revisions:**

- The expenditure limit was **last revised in 2014** while the same was done for **Andhra Pradesh and Telangana in 2018**, following their **bifurcation in 2014**.
- After that, the limit has not been increased **despite an increase in the electorate** from 834 million in 2014 to 921 million in 2020 and an **increase in the Cost Inflation Index** from 220 in 2014 to 301 in 2020.

Expenditure Limit

- It is the **amount an election candidate can legally spend for their election campaign** and has to account for, which **includes expenses on** public meetings, rallies, advertisements, posters, banners vehicles and advertisements.
- These **limits range from Rs. 20 lakh to Rs. 28 lakh** for **assembly elections** and from **Rs. 54 lakh to Rs. 70 lakh** for **Lok Sabha elections**.
- Under **Section 77 of the Representation of the People Act (RPA), 1951**, every candidate shall keep a **separate and correct account of all expenditure** incurred between the date on which they have been nominated and the date of declaration of the result.
- All candidates are required to **submit their expenditure statement to the ECI within 30 days** of the completion of the elections.
- An **incorrect account or expenditure beyond the cap can lead to disqualification** of the candidate by the ECI **for up to three years**, under **Section 10A of RPA, 1951**.
- The limit prescribed by the ECI is **meant for legitimate expenditure** because a lot of money in elections is spent for illegitimate purposes.

- It has often been **argued that these limits are unrealistic** as the **actual expenditure** incurred by the candidate is **much higher**.
- In **December 2019**, a **private member's bill** was introduced in the Parliament which **intended to do away with the cap on election spending** by candidates.

The move was taken on the ground that the **ceiling on election expenses ends up being counterproductive** by encouraging candidates to under-report their expenditure.
- There is **no cap on a political party's expenditure**, which is often **exploited by candidates of the party**.

However, **all registered political parties** have to **submit a statement of their election expenditure to the ECI within 90 days** of the completion of the elections.
- **State Funding of Elections:**
 - In this system, the **states bear the election expenditure of political parties** contesting the Election.
 - This can **bring transparency in the funding process** as public finance can limit the influence of interested donors' money and thereby help curb corruption.
- **Recommendations on State Funding:**
 - **Indrajit Gupta Committee (1998):** It suggested that state funding would **ensure a level playing field for poorer political parties** and argued that such a move would be in public interest.

It also recommended that state funds should only be given to **recognised national and State parties** and funding should be given in the form of free facilities provided to these parties and their candidates.
 - **Law Commission Report (1999):** It stated that a state funding of elections is '**desirable**' provided that political **parties are prohibited from taking funds from other sources**.
 - **National Commission to Review the Working of the Constitution (2000):** It **did not support** the idea but mentioned that an appropriate framework for the regulation of political parties needs to be implemented before state funding is considered.
- The **ECI is not in favour of state funding** of elections on the grounds that it would **not be able to prohibit or check candidates' and other expenditures** over and above what is provided for by the state.

Cost Inflation Index

- It is **used to estimate the increase in the prices of goods and assets year-by-year due to inflation**.
- It is **calculated to match the prices to the inflation rate**. In simple words, an increase in the inflation rate over time will lead to a rise in the prices.

- Cost Inflation Index = **75% of the average rise in the Consumer Price Index** (urban) for the immediately preceding year.
Consumer Price Index compares the current price of a basket of goods and services (which represent the economy) with the cost of the same basket of goods and services in the previous year to calculate the increase in prices.
- The **Central Government specifies CII by notifying in the official gazette.**

Source: PIB

Integrated Theatre Command

Why in News

As part of defence reforms after the appointment of **the Chief of Defence Staff (CDS)**, the government is working on the **formation of integrated theatre commands**.

Key Points

- **Current Situation:**
 - The Indian armed forces **currently have 17 commands**. There are 7 commands each of the Army and the Air Force. The Navy has 3 commands.
Each command is headed by a **4-star rank military officer**.
 - There is **one joint command in Andaman and Nicobar Islands**.
 - It is the **first** Tri-Service theatre command of the Indian Armed Forces, based at **Port Blair** in Andaman and Nicobar Islands of India.
 - It was created in **2001** to safeguard India's strategic interests in Southeast Asia and the Strait of Malacca by increasing rapid deployment of military assets in the islands.
 - The other tri-service command, the **Strategic Forces Command (SFC)**, looks after the delivery and operational control of the country's nuclear assets.

- **Recent Developments:** The appointment of the **CDS** and the creation of the **Department of Military Affairs (DMA)** are momentous steps towards the integration and advancement of defence forces.
 - **CDS:** It is the **single-point military adviser** to the government as suggested by the Kargil Review Committee in 1999.
 - CDS oversees and coordinates the working of the three Services.
 - As the head of DMA, CDS is vested with the authority in prioritising inter-service procurement decisions.
 - **Department of Military Affairs:**
 - The **DMA** is headed by the **Chief of Defence Staff (CDS)**.
 - Work exclusively pertaining to military matters will fall within the purview of the DMA. Earlier, these functions were the mandate of the Department of Defence (DoD).
 - The next logical step in the process of defence reforms is the formation of Integrated Theatre Commands **to synergize the capabilities and combat potential** of the **three Services** during war and peace.
 - Teams headed by the Vice Chiefs of the three Services have been constituted to study and submit recommendations on the formation of various integrated commands.
 - The study on the air defence command is in an advanced stage of completion.
- **Integrated Theatre Command:**
 - An integrated theatre command envisages a **unified command of the three Services, under a single commander**, for geographical theatres (areas) that are of strategic and security concern.
 - The commander of such a force will be able to bear all resources at his disposal — from the Army, the Indian Air Force, and the Navy — with **seamless efficacy**.
 - The integrated theatre commander **will not be answerable to individual Services**.
 - Integration and jointness of the three forces will **avoid duplication of resources**. The resources available under each service will be available to other services too.
 - The services will get to know one another better, **strengthening cohesion** in the defence establishment.
 - The **Shekatkar committee** has recommended the creation of 3 integrated theatre commands — **northern** for the China border, **western** for the Pakistan border, and **southern** for the maritime role.

Source: TH

Demand for Repeal of UAPA

Why in News

Recently, major Opposition parties have demanded the repeal of the **Unlawful Activities (Prevention) Act (UAPA)**, 1967 after the arrest of Stan Swamy, an 83-year-old tribal rights activist, under the UAPA in the Bhima Koregaon case.

Key Points

- According to the **Ministry of Home Affairs** data, placed before the Parliament, there has been a steady increase in the number of those arrested under the UAPA. In 2016, 999 people were arrested, in 2017, 1,054 were arrested, while in 2018 1,031 were arrested.
- However, the conviction rate in UAPA cases was found to be less than 25%.
- Also, in almost 43% of cases, the charge sheet has taken more than a year or two to be filed.

UAPA

- UAPA was passed in **1967**. It **aims at effective prevention of unlawful activities associations in India**.
Unlawful activity refers to any action taken by an individual or association intended to disrupt the **territorial integrity and sovereignty of India**.
- The Act **assigns absolute power to the central government**, by way of which if the **Centre deems an activity as unlawful** then it may, **by way of an Official Gazette, declare it so**.
- It has **death penalty and life imprisonment** as highest punishments.
- Under UAPA, **both Indian and foreign nationals** can be charged. It will be applicable to the offenders in the same manner, even if crime is committed on a foreign land, outside India.
- Under the UAPA, the investigating agency can **file a charge sheet in maximum 180 days after the arrests** and the duration can be extended further after intimating the court.
- The **2004 amendment**, added "**terrorist act**" to the list of offences to ban organisations for terrorist activities, under which 34 outfits were banned.
Till 2004, "unlawful" activities referred to actions related to secession and cession of territory.

- In August 2019, Parliament cleared the **Unlawful Activities (Prevention) Amendment Bill, 2019** to designate individuals as terrorists if the individual commits or participates in acts of terrorism, prepares for terrorism, promotes terrorism or is otherwise involved in terrorism.
 - The Act empowers the **Director General of National Investigation Agency (NIA)** to grant approval of **seizure or attachment of property** when the case is investigated by the said agency.
 - The Act also empowers the **officers of the NIA, of the rank of Inspector or above**, to **investigate** cases of terrorism in addition to those conducted by the DSP or ACP or above rank officer in the state.

Source: TH

Mobile Application for Geo Tagging: PMKSY

Why in News

Recently, the Ministry of Jal Shakti launched a mobile application for geo-tagging of the components of projects under **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)**.

Key Points

- **Developed By:** The mobile application has been developed with the help of **Bhaskaracharya National Institute of Space Applications & Geoinformatics (BISAG-N)**.

BISAG-N is an autonomous scientific society registered under the **Societies Registration Act, 1860**. It comes under the **Ministry of Electronics and Information Technology**.
- **Objective:** To **track the pace of work and actual status of the projects**.
 - The mobile application can be used to capture the image of the project component along with other details such as location, type of canal/ structure, completion status, etc.
 - The captured information can be submitted by the user for **geo-tagging** on the **geographic information system (GIS) portal** developed for this purpose.
 - **Geo-tagging** is the process of adding geographical identification data to various media such as websites, SMS messages, QR Codes.

This data **usually consists of latitude and longitude coordinates**. It can also include altitude, bearing, distance, accuracy data, and place names, and perhaps a time stamp.
 - A **GIS** is a framework for gathering, managing, and analyzing geography related data.

- **Operation:** The mobile application can be operated in both online & offline mode depending on the network availability in the region.

Pradhan Mantri Krishi Sinchayee Yojana

- PMKSY is a **centrally sponsored scheme** launched in 2015 with the motto of "Har Khet Ko Paani".
- **Objectives:**
 - PMKSY is being implemented **to expand cultivated areas with assured irrigation, reduce wastage of water and improve water use efficiency** i.e. **Per drop-More crop**.
 - It also focuses on **creating protective irrigation by harnessing rainwater** at micro level through "**Jal Sanchay**" and "**Jal Sinchan**".
 - Protective irrigation** includes:
 - Protection of the crops from adverse effects of soil moisture deficiency.
 - Irrigation, which acts as a supplementary source of water over and above rainfall.
 - Providing soil moisture to maximum possible area.
 - Convergence of investments in irrigation at the field level.
 - To **enhance recharge of aquifers** and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal based water for **peri-urban agriculture** and attract greater private investment in a **precision irrigation system**.
 - An **aquifer** is a body of porous rock or sediment saturated with groundwater. Groundwater enters an aquifer as precipitation seeps through the soil. It can move through the aquifer and resurface through springs and wells.
 - **Peri-urban agriculture** refers to farm units close to town which operate intensive semi- or fully commercial farms to grow vegetables and other horticulture, raise chickens and other livestock, and produce milk and eggs.
 - **Precision Irrigation** is an innovative technique that uses water wisely and helps farmers achieve higher levels of crop yield in a minimal amount of water.

- **Formulation:** It was formulated by amalgamating following schemes:
 - **Accelerated Irrigation Benefit Programme (AIBP)** - Ministry of Water Resources, River Development & Ganga Rejuvenation (now Ministry of Jal Shakti).
 - **Integrated Watershed Management Programme (IWMP)** - Department of Land Resources, Ministry of Rural Development.
 - **On-Farm Water Management (OFWM)** - Department of Agriculture and Cooperation (DAC).
- **Implementation:** Decentralised implementation through **State Irrigation Plan** and **District Irrigation Plan**.

Source: PIB

India Invited to Join the Blue Dot Network

Why in News

A group of the US Senators, in a letter, has asked India to join the **Blue Dot Network (BDN)**.

The letter also **backed India's decision to invite Australia** to the annual **Malabar naval exercise**.

Key Points

- **Blue Dot Network:**

- The BDN was formally announced on 4th November 2019 at the **Indo-Pacific Business Forum** in Bangkok, Thailand. It is **led by the USA along with Japan and Australia**.
- It is a **multi-stakeholder initiative** to bring together governments, the private sector and civil society to promote high-quality, trusted standards for global infrastructure development.
- It is expected to serve as a globally recognized evaluation and certification system for roads, ports and bridges with a **focus on the Indo-Pacific region**.
 - Infrastructure projects would be graded on debt, environmental standards, labour standards etc.
 - This system would apply to projects in any citizen-centric country where citizens would like to evaluate such projects.
- It is planned as a **direct counter to China's Belt and Road Initiative (BRI)**.
- However, unlike the BRI, the **BDN would not offer public funds or loans for the project**.
- **Blue Dot certification:** BDN will serve as a **globally recognized seal of approval** for major infrastructure projects, letting people know that projects are sustainable and not exploitative.

- **Malabar Exercise:**

- It is an **annual** exercise between the navies of India, Japan, and the U.S. held alternately in the Indian and Pacific Oceans.
- Australia's inclusion to Malabar followed the recent **2+2 ministerial meeting** of the **Quadrilateral Security Dialogue [the Quad]** in Tokyo.

Way Forward

- The new Blue Dot Network, can be a strategy to persuade developing countries in Asia-Pacific not rely on Chinese funds (debt traps) for sustainable infrastructure development.
- India, Japan, and Australia can take the lead in infrastructural projects, while the USA needs to be more proactive in pushing ahead the vision of connectivity.

Source: TH

COVIRAP : A Quick Covid-19 Test

Why in News

Recently, **Indian Council of Medical Research (ICMR)** has approved a new low-cost

Covid-19 diagnostic method named **COVIRAP**, developed by the **Indian Institute of Technology (IIT), Kharagpur**.



Key Points

- **Working of COVIRAP:**
 - COVIRAP has an **automated pre-programmable temperature control unit**, a **special detection unit on genomic analysis**, and a **customised smartphone app** for results.
 - The machine has an **isothermal nucleic acid amplification method**, which did away with the need for a **thermocycler**.
 - **Isothermal amplification of nucleic acids** is a process that rapidly and efficiently accumulates **nucleic acid sequences** at constant temperature. The Isothermal Amplification Techniques have been developed as **alternatives to Polymerase Chain Reaction (PCR)**.
 - **Thermocyclers** are instruments used to **amplify DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) samples** by the **polymerase chain reaction**.
 - Once the sample is processed in the machine after being mixed with solutions developed by the IIT team, treated paper strips (similar to the pregnancy strips) are dipped into it, and the emergence of coloured lines will depict the presence of the virus.

- **Benefit of COVIRAP Process:**

- **Economic:** It is a cheaper process, its machine costs less than Rs. 5,000 and the test kits would each cost about Rs. 500.

- **Quicker:** The **test is completed within an hour while RT-PCR test (Reverse Transcription Polymerase Chain Reaction)** takes 3-4 hours for testing the sample.

- **Simpler to Handle:** The portable test unit that **can be handled by unskilled operators outside the lab environment.**

It is also better than the **FELUDA test** because the FELUDA employs a gene editing technology called **CRISPR-cas9**, which requires a lab testing environment.

- **Reusable:** The **same unit can be used for a large number of tests** on replacement of the paper cartridge after each test.

- **Efficient:** This assay (testing) holds the **capability of detecting extremely low levels of viral loads** compared to any other method based on similar principles of testing.

This means that very early stages of infection can be detected, thereby isolating the patient and arresting the uncontrolled spread of infection in the community via asymptomatic patients.

- **High Accuracy:** It correctly detected **108 out of the 115 positive samples** identified by an RT-PCR machine, and **83 out of 85 negative samples**, meaning that it has a **94% sensitivity and 98% specificity** in comparison to RT-PCR (i.e lower than RT-PCR).

- **Other Usage:** The COVIRAP testing machine **can also perform tests other than Covid-19.** It can be used in influenza, malaria, dengue, Japanese encephalitis, TB etc, which are under the category of isothermal nucleic acid-based tests.

Novel solution

A look at how the new COVID-19 testing device works



Virus alert: Researchers with the COVIRAP device at IIT Kharagpur.

▪ SPECIAL ARRANGEMENT

▪ COVIRAP machine resembles a box and comes with a kit

▪ Kit has three master mixes which are markers of different genes to confirm the virus

▪ RNA samples are extracted from **nasal swabs** and mixed with the master mix in tubes

▪ Tubes are put in the machine which is set at a specific temperature and programmed to run for a fixed period

▪ Once the heating is over,

it's mixed with another solution and reheated

▪ A paper strip is dipped into reaction product

▪ Coloured lines develop, like in a pregnancy kit, to indicate presence or absence of virus

▪ A smartphone app can grab image of the strip and convey results

▪ COVIRAP can deliver results in an hour

DIFFERENCES WITH RT-PCR

▪ While RT-PCR machines can cost up to ₹25 lakh, the COVIRAP machine cost the IIT researchers only **₹5,000**

▪ COVIRAP test kits cost about **₹500**

▪ RT-PCR needs to be operated by a molecular biologist

▪ COVIRAP can be operated with minimal training

RT-PCR Test

- **Kary Mullis**, the American biochemist invented the PCR technique. He was awarded the **Nobel Prize** for Chemistry in 1993.
- Under this, **copies of a segment of DNA (deoxyribonucleic acid)** are created using an enzyme called Polymerase.

The 'chain reaction' signifies how the DNA fragments are copied, exponentially — one is copied into two, the two are copied into four, and so on.

- A fluorescent **DNA binding dye called the “probe” is added to DNA**, which shows the presence of the virus on a **fluorometer**.
- Since coronavirus is made of **RNA (ribonucleic acid)**, therefore to detect coronavirus, **RNA is converted into DNA** using a technique called reverse transcription.

A 'reverse transcriptase' enzyme converts the RNA into DNA.

- Copies of the DNA are then made and amplified.

Source: TH

OSIRIS-REx Mission: NASA

Why in News

Recently, **NASA's OSIRIS-REx spacecraft** briefly touched down on the surface of **asteroid Benu** to collect rock and dust samples.

Key Points

- **About OSIRIS-REx Mission:**

- It is the **United States' first asteroid sample return mission**, aiming to collect and carry a pristine, unaltered sample from an asteroid back to earth for scientific study.
- The **OSIRIS-REx** (Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer) **spacecraft was launched in 2016** for the journey **to Benu**.
- The mission is essentially a **seven-year-long voyage** and will conclude when at least 60 grams of samples are delivered back to the Earth (in 2023).
- As per the **National Aeronautics and Space Administration (NASA)**, the mission promises to bring the **largest amount of extraterrestrial material back to the Earth since the Apollo era**.
 - Apollo was the NASA program that resulted in American astronauts' making a total of 11 space flights and walking on the moon (1968-72).
- The spacecraft **contains five instruments** meant to explore Benu including cameras, a spectrometer and a laser altimeter.
- Recently, the **spacecraft's robotic arm called the Touch-And-Go Sample Acquisition Mechanism (TAGSAM)**, made an attempt to "TAG" the asteroid at a sample site and collected a sample.
- The departure window for the mission will open up in 2021, after which it will take over two years to reach back to Earth.

- **Asteroid Bennu:**

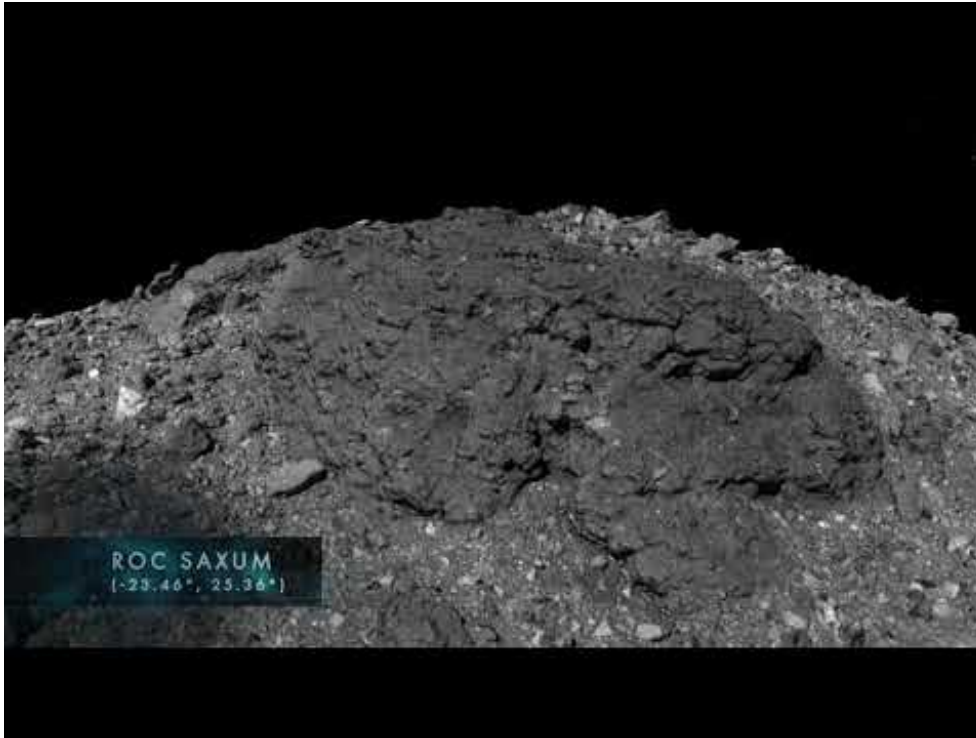
- Bennu is **an ancient asteroid**, currently **more than 200 million miles from Earth**.
- Bennu **offers scientists a window into the early solar system** as it was first taking shape billions of years ago and tossing ingredients that could have helped seed life on Earth.

Significantly, Bennu hasn't undergone drastic changes since its formation over billions of years ago and therefore it contains chemicals and rocks dating back to the birth of the solar system. It is also relatively close to the Earth.

- So far, it is known that **this asteroid is a B-type asteroid**, implying that it contains **significant amounts of carbon** and various other minerals.

Because of its high carbon content, it reflects about 4% of the light that hits it, which is very low when compared with a planet like Venus, which reflects about 65% of the light that hits it. Earth reflects about 30%.
- Around **20-40% of Bennu's interior is empty space** and scientists believe that **it was formed in the first 10 million years of the solar system's formation**, implying that it is **roughly 4.5 billion years old**.
- As per high-resolution photographs taken by the spacecraft, the surface of the asteroid is **covered in massive boulders**, making it more difficult to collect samples from its surface.
- There is a slight possibility that Bennu, which is classified as a **Near Earth Object (NEO)**, **might strike the Earth** in the next century, between the years 2175 and 2199.

NEOs are comets and asteroids nudged by the gravitational attraction of nearby planets into orbits which allows them to enter the Earth's neighbourhood.
- The asteroid was **discovered** by a team from the NASA-funded Lincoln Near-Earth Asteroid Research team in 1999.



Watch Video At:

<https://youtu.be/dUWfXJLPiBg>

Asteroids

- These are **rocky objects that orbit the Sun, much smaller than planets**. They are **also called minor planets**.
- According to NASA, 9,94,383 is the count of known asteroids, the **remnants from the formation of the solar system over 4.6 billion years ago**.
- Asteroids are **divided into three classes**.
 - First, those found in the **main asteroid belt** between Mars and Jupiter, which is estimated to contain somewhere between 1.1-1.9 million asteroids.
 - The second group is that of **trojans**, which are asteroids that share an orbit with a larger planet.

NASA reports the presence of Jupiter, Neptune and Mars trojans. In 2011, they reported an Earth trojan as well.
 - The third classification is **Near-Earth Asteroids (NEA)**, which have orbits that pass close by the Earth. Those that cross the Earth's orbit are called **Earth-crossers**.
 - More than 10,000 such asteroids are known, out of which over 1,400 are classified as **potentially hazardous asteroids (PHAs)**.
 - PHAs are currently defined based on parameters that measure the asteroid's potential to make threatening close approaches to the Earth.
 - Specifically, all asteroids with an Earth Minimum Orbit Intersection Distance (MOID) of 0.05 au or less and an absolute magnitude (H) of 22.0 or less are considered PHAs.

UDAN Day

Why in News

Recently, the **Ministry of Civil Aviation** has celebrated the **UDAN day** on the **4th anniversary of the UDAN (Ude Desh Ka Aam Naagrik) Scheme.**

The Government of India has acknowledged the contribution of the scheme and has identified **21st October** as UDAN Day, the day on which the scheme document was first released.

Key Points

- **About the Scheme:**

- **Ude Desh Ka Aam Naagrik** (UDAN) was launched as a **regional connectivity scheme** (RCS) under the Ministry of Civil Aviation in **2016**.

- **Aim:**

- To develop the regional aviation market.
- To provide affordable, economically viable and profitable air travel on regional routes to the common man even in small towns.

- It envisages **providing connectivity to un-served and under-served airports** of the country through the **revival of existing airstrips and airports**.

Under-served airports are those which do not have more than one flight a day, while unserved airports are those where there are no operations.

- The scheme is implemented by the **Airports Authority of India** (AAI) and is **operational for a period of 10 years**.

- **Achievements Highlighted:**

- **Created a virtuous circle wherein the UDAN routes feed the national network** and the national routes further create new opportunities for the people across the country who then generate demand for more regional routes.

- Played a major role in **adding new airports and routes to the aviation landscape** of the country.

- **Suggestions:**
 - Stakeholders should **work towards making the UDAN scheme sustainable** on its own and **improve its efficiency**.
 - Airlines should **undertake marketing initiatives** so that more and more people can take advantage of the UDAN scheme.
 - **More infrastructure is required** for the successful implementation of the scheme across the country.

Source: PIB

Expansion of Production-Linked Incentive Scheme

Why in News

The government will extend the **production-linked incentive (PLI) scheme** to eight more sectors to boost domestic manufacturing.

Key Points

- PLI Scheme is an **outcome- and output-oriented scheme** where incentives will be paid only if the manufacturers make the goods.
- This scheme will give **cash incentives for five to seven years** and all the **sunrise** and **important sectors** are proposed to be covered in this.
 - The sectors **may be** automobile, networking products, food processing, advanced chemistry and solar PV manufacturing.
- **Need:**
 - Sunrise sectors are promising sectors but they may need support in the initial stage.
 - Export base can be developed in sectors under PLI scheme.
 - There is a growing demand in the world for diversification in supply chains and India can become a major player.
- With the view to make India a manufacturing hub, the government **launched the PLI scheme for mobile phones** (electronic manufacturing) and it was **extended to pharma products and medical equipment sectors**.

PLI Scheme for Large Scale Electronics Manufacturing

- The scheme proposes a financial **incentive** to boost domestic manufacturing and attract large investments in the electronics value chain including **electronic components and semiconductor packaging**.

- Under the scheme, electronics manufacturing companies will get an **incentive of 4 to 6% on incremental sales (over base year) of goods manufactured in India** for a **period of next 5 years**.
- The scheme **shall only be applicable for target segments** namely mobile phones and specified electronic components.
- The government estimates that with the PLI scheme, **domestic value addition for mobile phones is expected to rise** to 35-40% by 2025 from the current level of 20-25% and **generate additional 8 lakh jobs**, both direct and indirect.

The production of mobile phones in the country has surged eight-times in the last four years from around Rs. 18,900 crore in 2014-15 to Rs 1.7 lakh crore in 2018-19.

Source: TH
