Prelim Bits 03-06-2019

National Statistical Office

- Union government has announced that the National Sample Survey Office (NSSO) will be merged with the Central Statistics Office to form the National Statistical Office (NSO).
- The NSO will be headed by the secretary of the Ministry of Statistics and Programme Implementation (MOSPI).
- The move is taken as the Statistical agencies like the Central Statistics Office (CSO) and the National Sample Survey Organization (NSSO) face numerous problems in collecting data from State and Central government departments.
- National Statistical office would lay special emphasis on ensuring collection of unbiased data so as to restore public trust in the figures released by the Government.

Indian State of Forest Report

- Forest Survey of India (FSI) has been assessing the forest and tree resources of our country on a biennial basis since 1987.
- The results of the assessment are published in its biennial report titled “India State of Forest Report (ISFR)”.
- According to (ISFR) Indian State of Forest Report India has shown an increasing trend in the forest and tree cover, in comparison to the global trend of decreasing forest cover during the last decade.
- India is ranked 10th in the world, with 24.4% of land area under forest and tree cover.
- Madhya Pradesh has the largest forest cover of 77,414 sq km in the country in terms of area, followed by Arunachal Pradesh with 66,964 sq km and Chhattisgarh (55,547 sq km).
- In terms of percentage of forest cover with respect to the total geographical area, Lakshadweep with (90.33 per cent) has the highest forest cover, followed by Mizoram (86.27 per cent) and Andaman & Nicobar Island (81.73 per cent).

Bhuvan Portal

- Bhuvan is ISRO's internet portal and an app which provides visualization services and Earth observation data to users in public domain.
- Besides, the portal also services several users for their remote sensing application needs.
- The Government agencies use this platform to share and host their data as per their requirements, enabling specific applications of their choice.
- Some Indian states are using Bhuvan platform for specific applications in Forestry, Tourism, Municipal GIS, Geo-tagging and so on.
- Recently ministry of AYUSH collaborated with Bhuvan portal for a Yoga related app.

Gene Editing Tools

- **CRISPR –**Clustered regularly interspaced short palindromic repeats (CRISPR) are unusual but repeated DNA structures.
- CRISPR is a key part of the "immune system".
- For instance, when a virus enters bacteria, it fights back by cutting up the virus's DNA, this kills the virus but bacteria store some of the DNA.
- The next time there is an invasion, bacteria produce an enzyme called Cas9 which matches the stored fingerprints with that of the invader's, If it matches, Cas9 can snip the invading DNA.
- **CRISPR-Cas9 -** It is the gene editing tool, which has two components

1. A short RNA sequence that can bind to a specific target of the DNA
2. Cas9 enzyme which acts like a molecular scissor to cut the DNA.

- To edit a gene of interest, the short RNA sequence that perfectly matches with the DNA sequence that has to be edited is introduced.
- Once it binds to the DNA, the Cas9 enzyme cuts the DNA at the targeted location where the RNA sequence is bound.
- Once the DNA is cut, the natural DNA repair mechanism is utilized to add or remove genetic material or make changes to the DNA.

Optoelectronics

- Optoelectronics is the study and application of electronic devices and systems that source, detect and control light, usually considered a sub-field of photonics.
- In this context, light often includes invisible forms of radiation such as gamma rays, X-rays, ultraviolet and infrared, in addition to visible light.
- Materials such as tungsten diselenide (WSe2) and molybdenum diselenide are being studied keenly for their opto-electronic properties.

- A key property of these materials is photoluminescence, in which the material absorbs light and re-emits it as a spectrum.
- Photoluminescence properties can be used in various devices such as quantum LEDs which can be used in communication and computation.

Source: The Hindu, PIB

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