Prelim Bits 27-12-2017

LiDAR to monitor Air Quality

\n\n

\n
- Central Pollution Control Board (CPCB) is currently focussing on its surface-level monitoring of air quality of Delhi-NCR.
\n
- However, in “later stages”, it is also planning to take up vertical monitoring by using advanced Light Detection and Ranging (LiDAR) devices.
\n
- LiDAR is a monitoring system for mapping and modelling in -micro-topography, forestry, agriculture, meteorology and environmental pollution-
\n
- LiDAR projects laser beams towards the sky.
\n
- Subsequently, the interplay of light with the objects falling on its path through absorption, reflection, scattering help determine the composition of suspended particulates.
\n
- Elastic Backscatter LiDAR and Raman LiDAR are used in monitoring air pollutants vertically.
\n
- The CPCB and IMD had used the Elastic Backscatter LiDAR during the 2010 Commonwealth Games and the data was utilised in 3D modelling and forecasting during the games.
\n

\n\n

Memristors & AI

\n\n

\n
- Artificial neural networks (ANNs) are computing systems that can learn and progressively improve performance on tasks by considering examples.
\n

\n\n

\n

- Researchers have recently developed a new type of neural network chip that can dramatically improve the efficiency of teaching machines to think like humans.
  \n
- It improves a typical neural network’s capacity and reduces the required training time.
  \n
- They have been created in the past with larger optical components.
  \n
- Now the researchers have created their system using memristors.
  \n
- Memristors are a special type of resistive device that can both perform logic and store data.
  \n
- This contrasts with typical computer systems, where processors perform logic separate from memory modules.
  \n
- Hence they require less space and can be integrated more easily into silicon-based electronics.
  \n

\n\n

BND-4201

\n\n

\n

- Bharatiya Nirdeshak Dravya (BND-4201) is India’s first home-grown high purity gold reference standard recently launched.
  \n

\n\n

\n

- It will be the reference material for gold of ‘9999’ fineness i.e gold that is 99.99% pure.
  \n
- It will be beneficial to the consumers and public at large to ensure purity of gold.
  \n
- Once the BND’s of other purity gold are made available in the market, jewellers will move towards more instrumental methods.
  \n
- The conventional fire assay methods for testing are not only time consuming but also not environment friendly as poisonous gases are released.
  \n

- This will also be useful for Collection and Purity Testing Centres to certify the purity of gold deposits under the gold monetisation scheme.
\n

\n\n

CAMPA Rules

\n\n

\n
- Compensatory and Afforestation Fund (CAF) Bill envisaged the creation of a permanent Compensatory Afforestation Fund Management and Planning Authority (CAMPA).
\n
- The Bill establishes the National Compensatory Afforestation Fund and a State Compensatory Afforestation Fund under each State.
\n
- The Bill allows the States to access nearly Rs.42,000 crore, mostly collected from industrial projects as penalties, from CAMPA and channel it into afforestation projects.
\n
- More than a year after the Union government brought in the law, it is yet to frame rules to get the money disbursed.
\n
- While States are getting money, it continues to be under an “ad hoc” mechanism whereby the Centre disburses it on a needs-basis.
\n
- Also a year after the law came into being, the disbursal this year has dropped to a three-year low.
\n

\n\n

$318 Million Loan Agreement

\n\n

\n
- The Government of India, the Government of Tamil Nadu and the World Bank today signed a $318 million loan agreement for the **Tamil Nadu Irrigated Agriculture Modernization Project.**
\n
- The project is to promote climate resilient agriculture technologies, improve water management practices, and increase market opportunities for small and marginal farmers.
\n

- More than 160,000 ha of currently partially irrigated lands will come into full irrigation under this project.
  \n
- The project will rehabilitate and modernize about 4,800 irrigation tanks and 477 check dams, spread across 66 sub-basins, in delivering bulk water to irrigation systems.
  \n
- Paddy is the dominant crop occupying 34% of total cropped areas, whereas fruits and vegetables are grown on 11% and pulses and oilseeds on 14% of total cropped areas.
  \n
- By helping farmers' access modern technologies, linking them to markets, and providing postharvest management support, the project will enable farmers to shift from a mono crop paddy system to mixed cropping.
  \n
- The project will support smallholder producers adopt new conservation technologies such as the System of Rice Intensification (SRI) and Sustainable Sugar Initiative (SSI).
  \n
- They reduce average water usage by 35% and increase yields by 22% per ha.
  \n
- The loan has a 5-year grace period, and a maturity of 19 years.
  \n

\n

SHANKAR
IAS PARLIAMENT
Information is Empowering