2019

drishti

CURRENT AFFAIRS

SCIENCE & TECHNOLOGY

25th November- 30th November

THE HINDU | The Indian EXPRESS | live mint

BusinessLine | PIB

1. **Cartosat-3**

Why in News?

Cartosat-3, **a third generation remote sensing satellite**, was launched by Indian Space Research Organisation (ISRO) into **Sun Synchronous Orbit**.

- The satellite will replace the IRS series.
- It was launched from the Satish Dhawan Space Centre at Sriharikota in coastal Andhra Pradesh.
- It was carried by Polar Satellite Launch Vehicle in 'XL' Configuration, **PSLV-C47.**
- Also 13 commercial nanosatellites of USA are launched under commercial agreement with New Space India Limited (NSIL).

About Cartosat-3

- At 1,625 kg, Cartosat-3 is unusually heavy and more than double the mass of the previous eight in its class.
- **New technologies** built in, such as:
  - A highly agile or flexible camera
  - High-speed data transmission
  - Advanced computer system and new power electronics
- It has the **'sharpest eye'** of **civil remote sensing satellites** in the world. One of Cartosat-3's cameras offers a **ground resolution of 25 cm.**
  - **Importance:** It can pick up an object of a minimum of that size from a height of around 500 km.
- Cartosat-3 ushers in the 3rd generation of **high-resolution 'optical imaging'** satellites.
  - This enables precise cartographic or mapping activities, apart from their unstated military use.

Cartosat Series Satellites

- So far, ISRO has orbited eight Cartosats since May 2005.
- Data from most of them, especially the last four of the Carto-2 series, are **exclusively used by the armed forces.**
  - An existing policy allows **only government and government authorised agencies** to access ISRO's high-resolution imageries below a resolution of 1 metre.
- The previous best view from a Cartosat was 65 cm, as put in the last three or four satellites in the Cartosat-2 series - 2C, 2D, 2E and 2F.
- **Key features of the Cartosats:**
  - They help to detect changes in natural geographical or man-made features.
  - Their cameras can `look back and forth' in an angle to generate continuous spot images.
- **Applications of Cartosat series satellites:**
  - Cartographic applications

- Urban and rural applications
- Infrastructure planning
- Coastal land use and regulation
- Utility management such as monitoring road networks, water grids or distribution,
- Creation of land use maps, among others.

2. Golden Rice

Why in News?

Bangladesh could be the first country to approve plantation of Golden Rice, which is helpful in meeting nutritional requirements of Vitamin-A.

- In Bangladesh, over 21% of the children have vitamin A deficiency.

Golden Rice

- It is a new type of biofortified genetically modified variety of rice developed by the **International Rice Research Institute - Philippines** that contains beta-carotene (provitamin A).
  - **Beta-carotene** is converted into vitamin A and gives the grain its golden color.
- It has been developed through genetic engineering and produces new enzymes that complete the beta-carotene expression in the rice grain.

Advantages

- Golden Rice is easy to digest than normal rice.
- Golden rice could improve mortality, nutritional value of diet as it contains beta carotene which is essential for Vitamin-A synthesis.

Concerns

- The Food Safety and Standards Authority of India [FSSAI], the apex food regulator, has failed to curb the illegal sales of GM food.
  - Its draft regulations on GM food labelling are weak and impractical to implement.
- **Lack of clarity**- Genetically modified crops is an evolving concept and its impact on human health and environment yet to be understood properly.
- There is also a potential for pests to evolve resistance to the toxins produced by GM crops and the risk of these toxins affecting nontarget organisms.
- There is also the danger of unintentionally introducing allergens and other anti-nutrition factors in foods.

3. FASTags

Why in News?

From December 15th, 2019 lanes on national highway toll plazas across India will accept toll only through FASTag.

- FASTag is fitted in a vehicle that pays toll automatically when the vehicle crosses the boom barrier of the toll plaza.

FASTag

- The electronic toll collection programme is being implemented by the Indian Highways Management Company Limited (IHMCL), a company incorporated by the National Highways Authority of India (NHAI).
- A FASTag is prepaid rechargeable tag developed by the National Payments Corporation of India under the National Electronic Toll Collection program.
- It is a sticker that uses radio frequency identification technology (RFID) for making toll payments.
- It is linked to either a prepaid card or savings account/digital wallet.
- It is affixed on the windscreen of the assigned vehicle and allows motorists to drive through toll plazas without stopping for cash transactions.
- It is valid for a tenure of five years, and can be recharged as and when required.
- It has seven different colours - violet, orange, yellow, green, pink, blue, black. Each colour is assigned to a particular category of vehicles.
- FASTag is presently operating at both - national and state highways.

Radio-Frequency Identification Technology(RFID)

- It is a generic term for technologies that use radio waves to automatically identify people or objects.
- An RFID system consists of a tag, which is made up of a microchip with an antenna, and an interrogator or reader with an antenna.
- The reader sends out electromagnetic waves.The tag antenna is tuned to receive these waves.A passive RFID tag draws power from field created by the reader and uses it to power the microchip's circuits.
- The chip then modulates the waves that the tag sends back to the reader and the reader converts the new waves into digital data.

To Watch the Video on YouTube,

Click Here