



Survey of Defence Land using Modern Technology

For Prelims: Digital India, Azadi Ka Amrut Mahotsav.

For Mains: Role of Emerging Modern Technologies in Land Survey

Why in News

Recently, the **Ministry of Defence** has **concluded a survey of nearly 18 lakh acres of defence land** scattered across 4,900 pockets across the country for effective land use and planning, and preventing encroachments.

Key Points

▪ About:

- It is a remarkable achievement **since for the first time after independence, entire defence land has been surveyed** by using latest survey technology and in a large number of pockets in association with the Revenue authorities of various State Governments.

▪ Use of Modern Technology:

- Modern survey technologies like **Electronic Total Station (ETS)** and **Differential Global Positioning System (DGPS)** were used in the survey.
 - **ETS** is integrated with Electronic Distance Measurement (EDM) to measure both vertical and horizontal angles and the slope distance from the instrument to a particular point, and an on-board computer to collect data and perform triangulation calculations.
 - **DGPS** is an advanced form of GPS navigation which provides greater positioning accuracy than the standard GPS.
 - **Drone imagery and Satellite imagery based surveys** were leveraged for reliable, robust and time bound outcomes.
 - For the first time, **Drone imagery based survey technology was used** for survey of lakhs of acres of defence land in Rajasthan.
 - Besides this, **Satellite Imagery based survey was done for the first time** for certain defence land pockets.
 - **3D Modelling techniques** for better visualisation of defence land in hilly area have also been introduced by utilising **Digital Elevation Model (DEM)** in association with **Bhabha Atomic Research Centre (BARC)**.
 - A Digital Elevation Model (DEM) is a **representation of the bare ground (bare earth) topographic surface of the Earth** excluding trees, buildings, and any other surface objects.
- #### ▪ Significance of this Achievement:
- This mammoth exercise of survey of nearly 18 lakh acres of defence land is a **unique example of leveraging emerging technologies for land survey** in a short time in line with the Central Govt's emphasis on **Digital India**.
 - Conducting this exercise after 75 years of Independence, also makes it a part of

celebrations under the **Azadi Ka Amrut Mahotsav**.

▪ **Capacity Building for Land Survey:**

- A **Centre of Excellence (CoE) on land survey** and **Geographic Information System (GIS)** mapping has also been established in **National Institute of Defence Estates Management** for capacity building of Defence Estates officials in the field of latest survey technologies.
- The **CoE aims to be an apex survey institution** capable of imparting training of various levels to the officers of central and state government departments.

Source: PIB

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