



# LiDAR Based Survey of Forest Areas

## Why in News

Recently, the Union Environment Minister in a virtual event released the **Detailed Project Reports (DPRs)** of **LiDAR (Light Detection and Ranging)** based survey of forest areas in ten states.

- The 10 mapped states are **Assam, Bihar, Chhattisgarh, Goa, Jharkhand, Madhya Pradesh, Maharashtra, Manipur, Nagaland, and Tripura.**

## Key Points

### ▪ Survey of Forest Areas Project:

- The project was **awarded to WAPCOS in July 2020** at a **cost of over Rs. 18 crore** for implementation in **26 states** over 261897 hectares.
  - **WAPCOS** is a **Mini Ratna** Public Sector Undertaking (PSU) under the Jal Shakti Ministry.
- It is **a first of its kind and a unique experiment using LiDAR technology** which will **help augment water and fodder in jungle** areas thereby reducing **human-animal conflict**.
  - LiDAR technology has been found to have **90% accuracy**.
- States will be given **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** funds to use in this project.
  - CAMPA is meant to **promote afforestation and regeneration activities** as a way of compensating for forest land diverted to non-forest uses.
  - CAMPA was established to **manage the Compensatory Afforestation Fund (CAF)** and it acts as the **custodian of the CAMPA fund**.
- **One major ridge inside a forest block** is identified in these states with an **average area of 10,000 ha selected in each State**; the area should have **average rainfall of the state**, and **requires assisted natural generation**.

### ▪ Significance:

- Besides reducing **human-animal conflict**, it will help us in **identifying areas** which **need groundwater recharge which will in turn help local communities**.
- It will **help in catching rainwater and prevent stream run-off**, which will help in recharging groundwater.
- It will help in **recommending different types of Soil & Water conservation structures** such as Anicut, Gabion, Gully Plug, Mini percolation tank, Percolation Tank, Field bund, Sunken pond, Farm pond etc.

## LiDAR

### ▪ About:

- It is a **remote sensing method that uses light in the form of a pulsed laser** to measure ranges & variable distances.
- These light pulses—combined with other data recorded by the airborne system— generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.
- A LiDAR instrument principally consists of a **laser, a scanner, and a specialized [Global Positioning System \(GPS\) receiver](#)**.
  - Airplanes and helicopters are the most commonly used platforms for acquiring LiDAR data over broad areas.
- LiDAR follows a simple principle — **throw laser light at an object on the earth surface and calculate the time it takes to return to the LiDAR source**.
  - Given the speed at which the **light travels** (approximately 186,000 miles per second), **the process of measuring the exact distance through LiDAR appears to be incredibly fast**.

▪ **Applications:**

- Lidar is commonly used to **make high-resolution maps**, with applications in surveying, geodesy, geomatics, archaeology, geography, geology, geomorphology, seismology, forestry, atmospheric physics, laser guidance, airborne laser swath mapping (ALSM), and laser altimetry.

**Source: IE**

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