



Use of Drones Technology

For Prelims: Drone Rules 2021, Application of Drone Technology, Atmanirbhar Bharat Abhiyan

For Mains: Uses, challenges and way forward for drone technology.

Why in News

Recently, the Ministry of Civil Aviation has suggested to the other Ministries to promote effective use of Drone technology.

- This suggestion was made as part of the initiatives to make India a global hub for drones under the [Atmanirbhar Bharat Abhiyan](#) and in the backdrop of the Union Government rolling out the liberalised [Drone Rules 2021](#).
- Drones offer tremendous benefits to almost every sector of the economy, national defence, agriculture, law enforcement, and mapping, among others.

Key Points

- **About Drones:**
 - It is a layman terminology for **Unmanned Aircraft (UA)**.
 - Originally developed for the military and aerospace industries, drones have found their way into the mainstream because of the enhanced levels of safety and efficiency they bring.
 - A drone's autonomy level can range from remotely piloted (a human controls its movements) to advanced autonomy, which means that it relies on a system of sensors and [LIDAR detectors](#) to calculate its movement.
- **Application of Drone Technology:**
 - **Defence:** Drone system can be used as a symmetric weapon against terrorist attacks.
 - Drones can be integrated into the national airspace system.
 - Deployment of drones for combat, communication in remote areas, counter-drone solutions can be done.
 - **Healthcare Delivery Purposes:** Recently, the Ministry of Civil Aviation has approved a project with the [Telangana government for using drone technology to deliver vaccines](#) in remote areas.
 - **Agriculture:** In the agriculture sector, micronutrients can be spread with the help of drones.
 - It can also be used for performing surveys for identifying the challenges faced by the farmers.
 - **Monitoring:** The drone technology in the [SVAMITVA scheme](#) launched by the Government of India, within less than a year, has helped about half a million village residents to get their property cards by mapping out the abadi areas.
 - Drones can be used for real-time surveillance of assets and transmission lines, theft prevention, visual inspection/maintenance, construction planning and management, etc
 - They can be used for anti-poaching actions, monitoring of forests and wildlife,

pollution assessment, and evidence gathering.

- **Law Enforcement:** Drones are also significant for the law enforcement agencies, the fire and emergency services wherever human intervention is not safe and the healthcare services.
- **Associated Issues:**
 - **Increased Risk of Armed Attacks:** Operation of drones without any adequate legal backing can pose several security threats.
 - Incidents of arms being dropped by drones are also there such as the recent Jammu drone attacks.
 - They can be put to destructive use, to slam into critical targets, destroy infrastructure and so on.
 - **Paramilitary Not Exempted from the Rules:** The drone rules 2021 are not applicable to the army, navy or the airforce.
 - However, it still includes paramilitary forces. BSF is suffering a lot of issues due to the drones coming across the lines.
 - **Cheaper Cost Enables a Larger Population to Procure Drones:** Drones are relatively cheaper in comparison to conventional weapons and yet can achieve far more destructive results which is the primary reason for increased number of drone attacks.
 - **Delivery of Mass Destruction Weapons:** What makes combat drones most dangerous is the threat of them being used to deliver weapons of mass destruction.
 - Procurement of combat drones by non-state actors poses serious threats.

Way Forward

- **Training Programs:** There has to be training programs for drone pilots. The drone technology alone will not be enough, there have to be a few more aspects to take care of for using the technology to its fullest.
- **Balancing Security and Benefits:** There is a need to ensure that the guidelines are in such a manner that the security concerns are not at all compromised but the drone technology is also used to the maximum of its advantages.
- **Developing Anti-Drone System:** The DRDO has started developing an anti-drone system, one is already in place. There are soft kill and hard kill options available.
 - Soft kill options include jamming the drone.
 - Hard kill options include the laser technology, missiles or other drones to shoot down the drone.
- **Increasing Investments:** India needs to invest in its own Unmanned Aerial Vehicle (UAV) systems and counter-drone technology to detect and track threats, especially around critical assets.

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