Drone Technology

DRONE TECHNOLOGY

Drone is a pilotless flying machine, using aerodynamics for lift, can operate autonomously or remotely, and may carry lethal or nonlethal cargo.

COMPONENTS

- Unmanned aircraft (UA)
- Control system (ground control station - GCS)
- Control link (specialized datalink)
- Other related support equipment

CLASSIFICATION

(as per Drone Rules, 2021)

- Nano: <250 gm
- Micro: 250 gm to 2 kg
- Mini: 2 kg to 25 kg
- Small: 25 kg to 150 kg
- Large: >150 kg

APPLICATIONS

- **Mapping & Surveying** (asset Inspection, roof inspections)
- **Agriculture** (bird control, crop spraying & monitoring etc)
- Multispectral/thermal/NIR cameras, **Aerial Photo/ videography** and Live streaming events
- **Emergency Response** (search and rescue, marine rescue, fire fighting)
- **Disaster** (zone mapping, disaster relief etc)
- **Mining**
- **Monitoring Poachers**
- **Meteorology**, Aviation, Payload carrying

DRONES IN DEFENCE

Purpose

- Surveillance and Reconnaissance
- Search and Rescue
- Maritime Surveillance
- Combat Drones
- Offensive (heterogeneous SWARM drones)
- Counter-Terrorism Operations

India's Counter-Drone System

- **Indrajaal** (India's inaugural autonomous drone-defense dome)
- Procurement of combat-capable **Heron drones from Israel**
- Acquisition of **MQ-9B Armed Drones from the US**

RELATED REGULATIONS

- Aircraft (Security) Rules, 2023
- Drones Rules, 2021 and Drone (Amendment) Rules, 2022

INDIA'S INITIATIVES

- Digital Sky Platform
- No-Permission-No-Takeoff (NPNT) framework
- PLI Scheme for Drones
- Drone Shakti Scheme

ISSUES

- Increased risk of armed attacks
- Data security
- **Cheaper cost** enables a larger population to procure drones
- Use of drones in warfare **(remote warfare)**
- **Procurement by non-state actors** can pose serious threats
- Ease in **delivering mass destruction weapons**

Drishti IAS

[Read more...]