Pushpak Drone Mission

Why in News?

The central government has appointed the **Indian Institute of Technology Bombay (IIT-B)** to lead the **'Pushpak – National Mission on Drone Technology'**, which promotes the **development of indigenous drone technology** across various sectors.

Key Points

- **Overview of the Mission:**
  - The **Ministry of Electronics and Information Technology (MeitY)** launched the 'Pushpak – National Mission on Drone Technology' with a total grant-in-aid of Rs 82.7 crore.
  - **Participating Institutes and Their Focus Areas:**
    - **IIT Bombay** has been appointed to **lead the mission.** It will focus on:
      - Developing hybrid drones and indigenous processors.
      - Creating **Unmanned Aerial Systems (UAS)** for disaster management, coastal monitoring, and specialised uses.
      - Facilitating collaboration between academia and industry to drive innovation in **next-gen drone technologies.**
    - **Veermata Jijabai Technological Institute (VJTI) Mumba**i will focus on:
      - Developing secure embedded systems and enhancing drone communication security.
      - Establishing a **dedicated drone security lab and forensic unit** to:
        - **Track drone flight patterns** within Indian airspace.
        - **Detecting and mitigating** drone-related **threats**.
        - Contribute to **long-term cybersecurity solutions** for drones.
    - Other participating institutions include:
      - CDAC-Thiruvananthapuram
      - CDAC-Bengaluru
      - IIT-Gandhinagar
      - IISER-Bhopal
      - Kalasalingam Academy of Research and Education (Tamil Nadu)
- **Mission Objectives and Strategic Vision:**
  - The Pushpak mission aims to make India **self-reliant** in drone technology through:
    - Advanced research and development (R&D).
    - Strategic partnerships with industry players.
    - Real-world testing and rapid commercialisation of technologies.
  - The mission will function under the oversight of a **National Steering Committee (NSC)**, comprising senior government officials and domain experts.
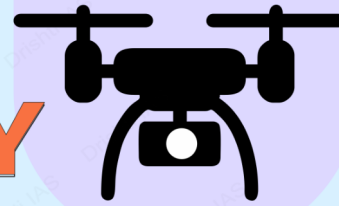- The **mission aims to**:
  - Reduce reliance on foreign technologies.
  - Enhance safety and **national security.**
  - Create employment opportunities in the drone sector.
  - Advance core capabilities in **AI** integration, UAV traffic management, and **indigenous manufacturing.**
- **Support for Innovation and Talent Development:**

- Pushpak will promote **faster technology transfer from research labs to the market.**
- It will provide:
  - Incubation support to drone-based startups.
  - Advanced training opportunities for students and researchers in drone-related fields.

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

PDF Refernece URL: https://www.drishtiias.com/printpdf/pushpak-drone-mission