AKASHTEER AIR DEFENCE CONTROL AND REPORTING SYSTEMS - DEFENCE

News: The Indian Army has acquired 100 Akashteer Air Defence Control and Reporting Systems to enhance air defence capabilities**.**

WHAT'S IN THE NEWS?

About Project Akashteer

- The Akashteer Project is an initiative designed to ***automate air defence control and reporting*** processes by digitising the entire process.
- Developed by **Bharat Electronics Limited (BEL)** as part of the 'Atmanirbhar Bharat' initiative, the project is aimed at significantly enhancing the operational efficiency and integration of the Army's air defence mechanisms.
    - **BEL is a Navratna PSU under the Ministry of Defence.**
- It seeks to induct Akashteer ***Command and Control*** Systems
- By integrating ***radar and communication systems*** at all levels into a unified network, 'Akashteer' aims to deliver an unprecedented level of situational awareness and control.
- This will enable swift ***engagement of hostile targets***, significantly reduce the risk of fratricide, and ensure the safety of friendly aircraft in contested airspace.

How it will help India's air defence system?

The 'Akashteer Command and Control Systems' will significantly enhance India's air defense capabilities in several ways:

1. **Efficiency and Integration:** Digitizing Air Defence Control and Reporting processes with 'Akashteer' will improve efficiency and integration. This enables the Indian Army to respond swiftly to hostile threats while reducing the risk of friendly fire incidents.
2. **Situational Awareness:** 'Akashteer' integrates radar and communication systems into a unified network, providing the Indian Army with better situational awareness. This enables them to detect and engage hostile targets more effectively, ensuring the safety of friendly aircraft in contested airspace.
3. **Mobility and Resilience:** The system's vehicle-based and mobile Control Centers are designed for operational capabilities even in challenging communication environments. This ensures that the Indian Army can operate effectively in diverse terrain and adverse conditions.
4. **Automation:** Deployment of 'Akashteer' represents a move towards complete automation of air defense operations. This enhances the Indian Army's ability to defend its airspace, ensuring a safer and more secure future for the country.

Ballistic Missile Defense (BMD) Program

- The BMD program was launched in 2000 post-Kargil War to create a multi-layered defense shield against ballistic missile threats.
- **Phases**: The BMD program consists of two phases:
    - **Phase I**: It focuses on high-altitude interception using systems like Prithvi Air Defence (PAD) and Advanced Air Defence (AAD).
    - **Phase II**: This phase extends capabilities to neutralize ballistic missiles in endo-atmospheric and low exo-atmospheric regions. The two-stage solid-propelled ground-launched missile system demonstrated successful interception capabilities.
- **Key Components of BMD**
    - **Prithvi Air Defence (PAD)**: It is designed for exo-atmospheric interception, this system targets incoming ballistic missiles at high altitudes.
    - **Advanced Air Defence (AAD)**: It is focused on endo-atmospheric interception, it complements the PAD by dealing with missiles at lower altitudes.

S-400 Triumf System

- India signed a $5.5 billion deal with Russia in 2018 for five S-400 systems, with three units already operational.
- **Capabilities**:

- **Range**: The S-400 can engage targets up to 400 kilometers away, effectively covering a vast area.
- **Target Tracking**: It can track 300 targets simultaneously and engage 60-80 targets, employing a dual-missile strategy for each target.
- **Counter-Stealth**: The system's advanced radar (AESA 1L119 NEBO SVU) is said to pose significant challenges for stealth aircraft, including the American F-35.

BrahMos missile system

- The BrahMos is a ramjet supersonic cruise missile of a short-range developed by Defence Research and Development Organisation (DRDO) and the Russian Federation's NPO Mashinostroyeniya.
- BrahMos was named after two major rivers of India and Russia: Brahmaputra and Moskva.
- The technology used in this joint venture is based on the Russian P-800 Oniks cruise missile and similar sea-skimming cruise missiles from Russia.
- **Surface-to-Air Missile Systems**:
  - **Akash Missile System**: A versatile surface-to-air missile capable of intercepting aerial threats, including aircraft and missiles, at ranges up to 30 kilometers. While not specifically designed for ballistic missile defense, it enhances overall air defense capabilities.
  - **Barak-8**: A joint development with Israel, this medium-range surface-to-air missile system can engage various aerial threats, including missiles and drones, at ranges up to 70 kilometers.

The Indian Army has declared 2024 as the **'Year of Technology Absorption'** and is undertaking various initiatives to induct niche technology and systems into its inventory. The induction of 'Akashteer' control centers is one of the major milestones achieved by the Army on its path to transformation to meet the current and futuristic requirements of complex air defense operations.

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