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CIVIL MILITARY SYSTEMS INTEGRATION & INTEROPERABILITY

▶ Interoperability can be considered as the ability of "systems" to bring civil and military CNS/ATM systems into convergence, such that state aircraft and civil aircraft can have access to the same common airspace on equal terms

INTEROPERABILITY

The importance of interoperability worldwide is due

▶ airspace being a finite resource, and the large growth in air traffic is driving a need to use it more intensively, which is pushing us towards a more flexible use of airspace.

▶ new navigation concepts being developed to satisfy the demands of operational capacity and the environment.

▶ Air traffic management , now requires solutions like reduced vertical separation minimum [RSVM] and required navigation performance/area navigation [RNP/RNAV].

Delivering these safely requires an extremely high level of Civil/Military CNS/ATM interoperability

INTEROPERABILITY

▶ Integration of 13 Civil Radar for monitoring of Indian Airspace by Air Force .

▶ Formation of a Technical sub-committee consisting of members from Airports Authority of India , Indian Air Force and other stakeholders constituted

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- The terms of reference of the technical committee was to conduct gap analysis for integration of all Civil Radar networks for a unified Radar picture to Air Force for monitoring .

- AAI to make provision of Radar/Surveillance data from all upcoming AAI surveillance sensors to Indian Air force

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- During recent floods in Chennai & failure of AAI Radar Standalone Radar display provided by Indian Air Force to Chennai FIR , which was a great relief to controllers

- Military would be one of the CDM participants beside other stakeholders in the upcoming nation wide, Air traffic flow Management (C-ATFM) system being installed at Delhi.

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EUROCONTROL has prepared a detailed road map on enhanced civil-military CNS interoperability and technology convergence in the areas of communication , Navigation , Surveillance , Certification, Spectrum, Planning / Procurement and Security,

International best practices in Civil-Military Co operation

▶ Eurocontrol Civil –Military CNS/ATM Interoperability Roadmap provides technical information to military authorities and ATM planners to determine the most cost effective / mission effective and system options to be considered during ATM/CNS implementation to enhance Civil-Military interoperability and Technology convergence

International best practices in Civil-Military Co operation

- unclassified military systems interfacing with secure IP ground communications,

- consideration of new aeronautical message handling systems (AMHS),

- use of VoIP for ground voice exchanges and, for the air-ground segment, VHF 8.33 kHz expansion (UHF retained),

- data link deployment,

SALIENT FEATURES : COMMUNICATIONS INTEROPERABILITY

- ▶ migration to satellite-based GNSS with recognition of military precise signals,

- ▶ GNSS augmentations (e.g. SBAS, GBAS),

- ▶ RNAV/RNP environment with the introduction of performance based navigation (PBN) accommodating lower-capability aircraft,

- ▶ 4D trajectory-based operations and rationalization of navigation infrastructure

SALIENT FEATURES
NAVIGATION –INTEROPERABILITY

- retention of primary surveillance radar (PSR) (potential future replacement by multistatic PSR in the long term),

- equipage with Mode S and ADS-B capabilities,

- consideration of wide area multilateration (WAM),

- safety and weather systems and improved surveillance data sharing.

SALIENT FEATURES: SURVEILLANCE –INTEROPERABILITY

- Interoperability between Civil and military systems should be implemented at the lowest possible cost for civil and military budgets

- Military planning and procurement programmes entails longer lifecycle that normally doubles the comparable civil planning procurement lead times

SALIENT FEATURES:
PLANNING & PROCUREMENT

- Success of most military mission depends on adequate access to spectrum resources particularly to ensure mobility and interoperability of forces
- Military utilization of spectrum bands must be safeguarded and mitigation of harmful impacts into civil infrastructure ensured through comprehensive civil – military coordination efforts
- Ensure the monitoring of actual spectrum utilization

SALIENT FEATURES: SPECTRUM

- As a way forward , a road map preparation on the lines of "Eurocontrol Road map on enhanced Civil-Military CNS Interoperability and Technology convergence" will be extremely useful as a baseline document for implementation of Civil-Military Co operation in India

RECOMMENDATIONS :