



Regional Implementation of Civil/Military Cooperation and Flexible Use of Airspace

LIU Song

Regional Officer ATM(AOM-FUA)

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Introduction

- *Assisting States in Civil/Military Cooperation (including Flexible Use Airspace) implementation is one of the strategic mandates of the ICAO APAC RSO*
- *ICAO has conducted a series of Civil/Military Cooperation/FUA Seminar/Workshop and is initiating Civil/Military Cooperation /FUA related projects*
- *ICAO had some observations on the current status of CMAC/FUA implementation in this region and there were some lessons learned*



Civil Military use of SUA
Strategic Civil Military coordination
Tactical Civil Military coordination
Civil Military system integration
Civil Military nav aids joint provision
Civil Military common training
Civil Military common procedures
360
370
380
390
400
410
420
B0-FRTO
Regional
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PRIORITY 1
PRIORITY 1
PRIORITY 1

Australia	100%	100%	100%	100%	100%	100%	100%
Bangladesh	No data	No data	100%	No data	100%	No data	100%
Bhutan	N/A	No data	No data	No data	N/A	No data	No data
China	N/A	100%	100%	N/A	No data	No data	N/A
Fiji	N/A	N/A	N/A	N/A	N/A	N/A	N/A
French Polynesia, France	N/A	No data	N/A	N/A	N/A	N/A	100%
Hong Kong, China	100%	N/A	100%	100%	N/A	N/A	N/A
India	100%	100%	100%	100%	100%	100%	100%
Indonesia	No data	No data	No data	No data	No data	No data	No data
Japan	100%	100%	100%	100%	100%	100%	100%
Macao, China	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Malaysia	100%	100%	100%	100%	100%	100%	100%
Maldives	No data	No data	No data	No data	No data	No data	No data
Nepal	N/A	N/A	N/A	N/A	N/A	N/A	No data
New Caledonia	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Philippines	100%	100%	0%	No data	100%	100%	100%
Republic of Korea	100%	100%	100%	100%	100%	100%	100%
Singapore	100%	100%	100%	100%	100%	100%	100%
Sri Lanka	0%	100%	100%	0%	0%	0%	0%
Thailand	100%	100%	100%	0%	100%	0%	0%
United States	100.0%	100%	100%	100%	N/A	N/A	N/A

Nov. 2015



Observations and Recommendations-CDR

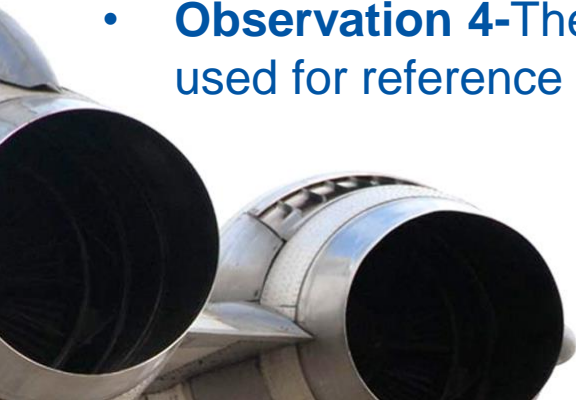
- **Observation 1**-Tactical crossing through military training areas is widely applied by States, though they are not published as CDR
- **Observation 2**-Some States have not implemented CDR in compliance with ICAO's CDR categories. These applications are called direct routes or temporary routes instead





Observations and Recommendations-CDR (cont'd)

- **Observation 3**-The foreseen availability and flight planning capability of the similar CDR applications are relatively low, some of them are able to be upgraded to more advanced category
- **Observation 4**-There are successful applications which could be shared and used for reference in our region





CDR1

- Expected to be available for most of the time
- Plannable in the same way as all permanent routes
- In the event of short notice unavailability, re-routing around active TSA on ATC instructions

CDR2

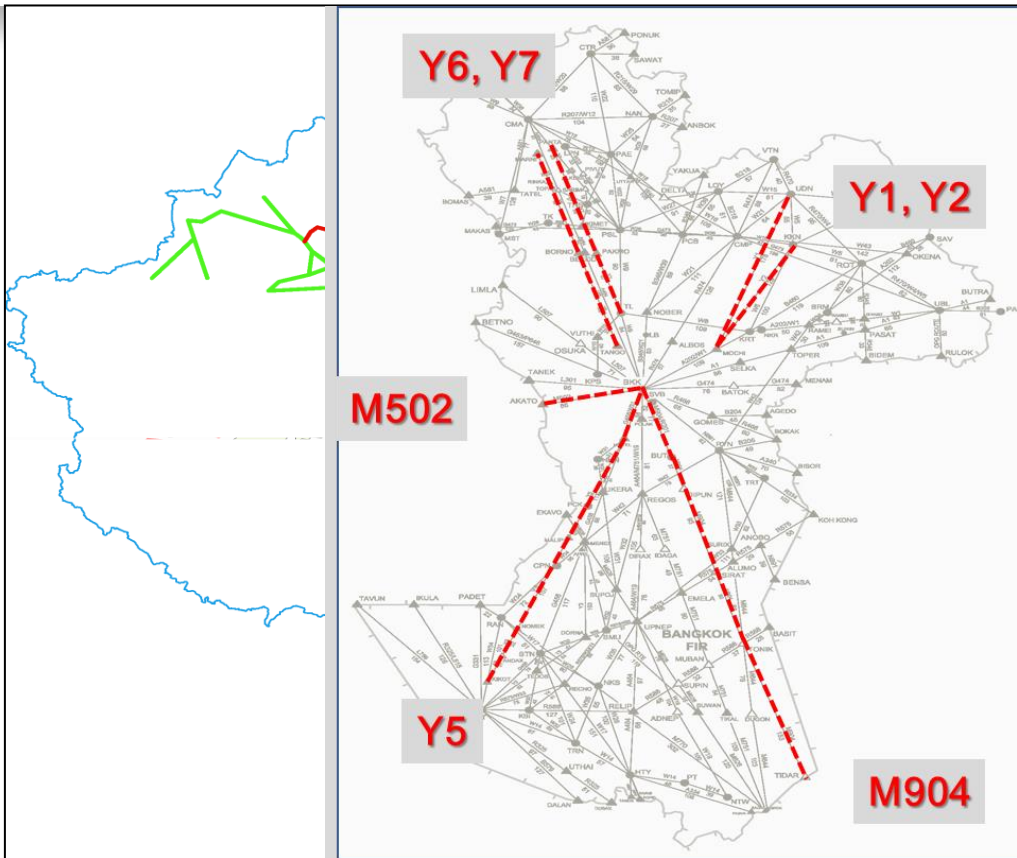
- Day to Day coordinated and allocated to respond to ATC capacity imbalance
- Plannable only in accordance with NOTAM
- Part of pre-defined routing scenario

CDR3

- Usable on ATC instructions only
- Use as short notice routing

Foreseen availability

Flight Planning possibilities



- Y1, Y2 (CDR1: weekend route)
- M904 (CDR 2: through Navy Base)
- M502 (CDR 1: weekend route)
- Y5 (CDR 1 -> CDR2)
- Y6 *, Y7* (CDR 1 -> fixed RNAV routes)
(through improvement of corresponding Danger Areas)



Observations and Recommendations-CDR (cont'd)

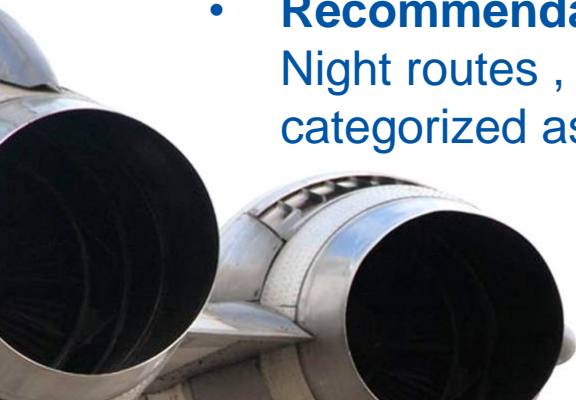
- **Recommendation 1**-States should comply with ICAO's definition of CDR
- **Recommendation 2**-States may start Flexible Use of Airspace with Conditional Routes (CDRs) as a way to increase flight operation efficiency





Observations and Recommendations-CDR (cont'd)

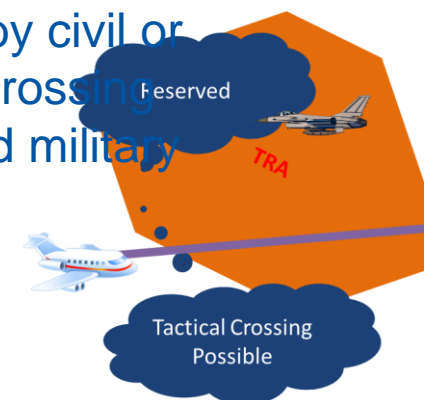
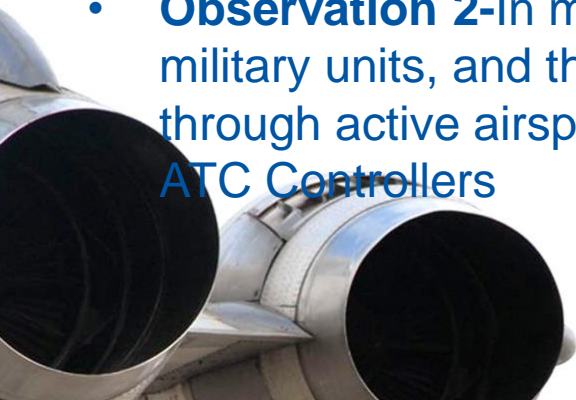
- **Recommendation 3-CDR2** is recommended as the efficient category from the beginning which takes into consideration the flexibility and benefits of both civilian and military.
- **Recommendation 4**-States are encouraged to consider implementing Night routes , Week ends routes , Holiday routes which could be categorized as CDR1





Observations and Recommendations-TSA/TRA

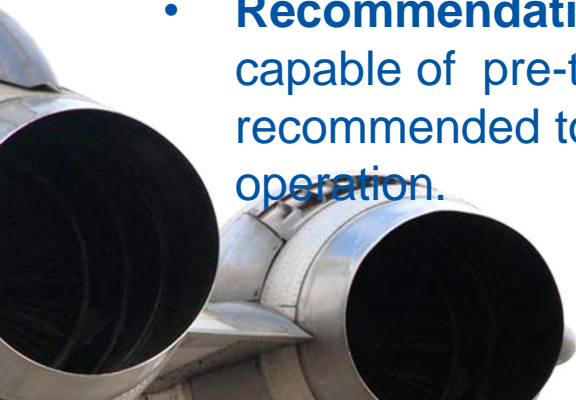
- **Observation 1**-Few States introduced or published TSA/TRA in their airspace. Though many Danger, Restricted areas are no longer published as 24 hours a day and 7 days a week, they are not coordinated and allocated on a day-to-day basis.
- **Observation 2**-In most cases, segregated airspace are used by civil or military units, and the application of TRA which allows tactical crossing through active airspace need support of regulation and qualified military ATC Controllers





Observations and Recommendations-TSA/TRA (cont'd)

- **Recommendation 1-** For those States which have not implemented FUA, they are recommended to start with CDR and involve the TSA/TRA concept in their national airspace planning in the beginning.
- **Recommendation 2-** For those States which have a need and are capable of pre-tactical coordination on airspace allocation, they are recommended to consider introduce TSA/TRA in daily coordination and operation.





Observations and Recommendations - ASM entity and Pre-tactical ASM

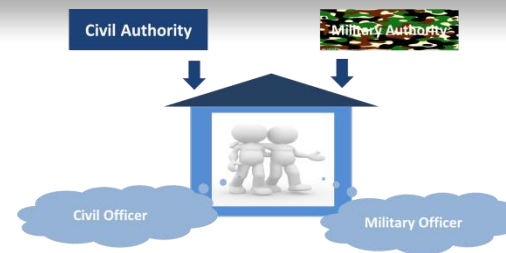
- **Observation 1-** Few States has ASM entity taking the form of civil-military joint cell to conduct pre-tactical civil/military coordination and airspace allocation
- **Observation 2-** Some States have similar function which integrated into ACC or ATM center





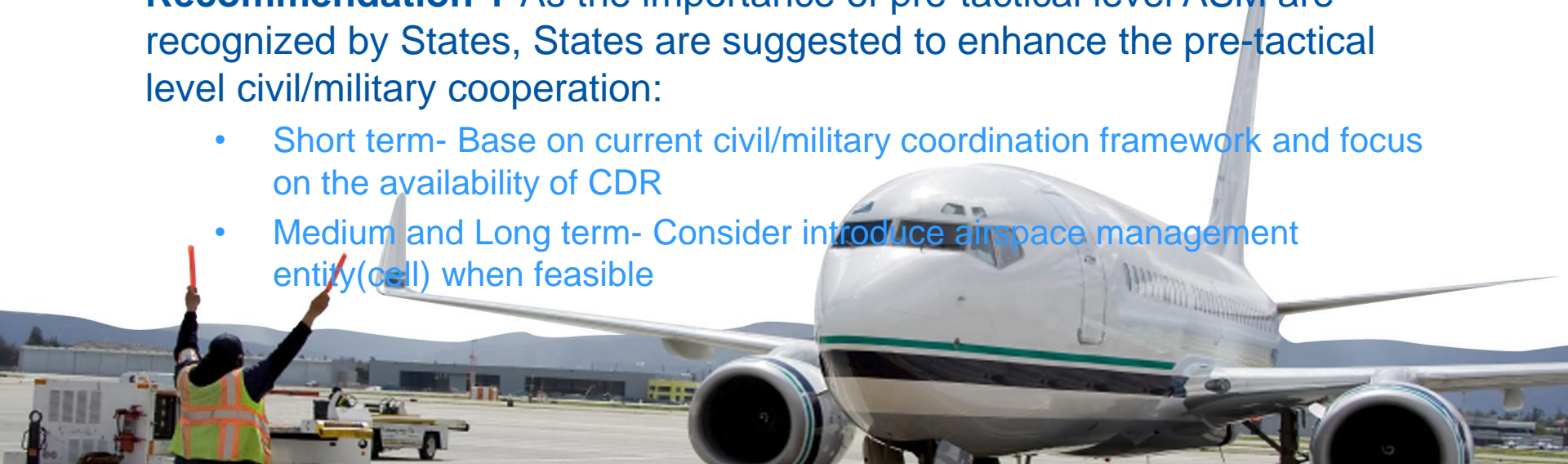
Observations and Recommendations

- ASM entity and Pre-tactical ASM (cont'd)



Recommendation 1-As the importance of pre-tactical level ASM are recognized by States, States are suggested to enhance the pre-tactical level civil/military cooperation:

- Short term- Base on current civil/military coordination framework and focus on the availability of CDR
- Medium and Long term- Consider introduce airspace management entity(cell) when feasible

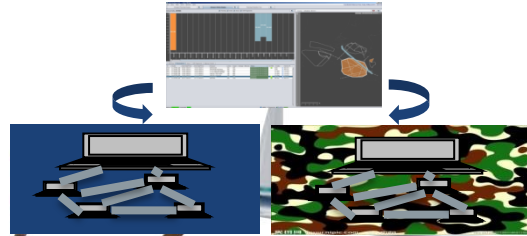




Observations and Recommendations

- ASM entity and Pre-tactical ASM (cont'd)

Recommendation 2- To ensure a timely and efficient ASM process, especially at ASM level2, States are suggested to consider providing the ASM entities with adequate supporting system





Observations and Recommendations-National CMAC Body

- **Observation** – Most States have strategic civil and military coordination mechanism, some of them take the form of regular meetings at headquarter level of civil/military authorities
- **Recommendation** – Comparing to meeting mechanism , a National CMAC Body is more effective and efficient , especially for flexible use of airspace, development of national airspace planning process, establishment of airspace review mechanism and the national airspace structure (route network and SUA)





- National, high-level civil/military coordination body
- Consistent collaborative national airspace planning process
- Communication, negotiation, and priority rules and procedures for Civil/Military Cooperation
- Publication of procedures for activities which require airspace reservation or restriction.
- Framework agreements between civil and military authorities
- System of periodically review airspace needs, organization and management
- Predictive and timely access to restricted or reserved airspace



Observations and Recommendations- FUA Prerequisites

- **Recommendation** -As States recognized the importance of the 7 prerequisites identified by ICAO for Flexible Use of Airspace(FUA) , ICAO recommended States analysing the gap between emerging situation and ICAO's suggestions (prerequisites) for better understanding and pushing forth FUA implementation





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THANK YOU