



# Civil-Military Air Traffic Management Cooperation in Thailand

Nov 20<sup>th</sup>, 2014

Royal Thai Air Force (RTAF)  
&  
Aeronautical Radio of Thailand Ltd  
(AEROTHAI)



# Presentation Overview



- Guideline for CMAAC development in Thailand
- Bangkok FIR Traffic Overview
- Airspace overview - P/D/R in Thailand
- 3 Levels of ASM
- Civil-Military ATM Coordination Committee
- Benefits of FUA
- Past and Current Work
  - Past establishments
  - On-going work
- Future Plan

# Guideline for CMAC development



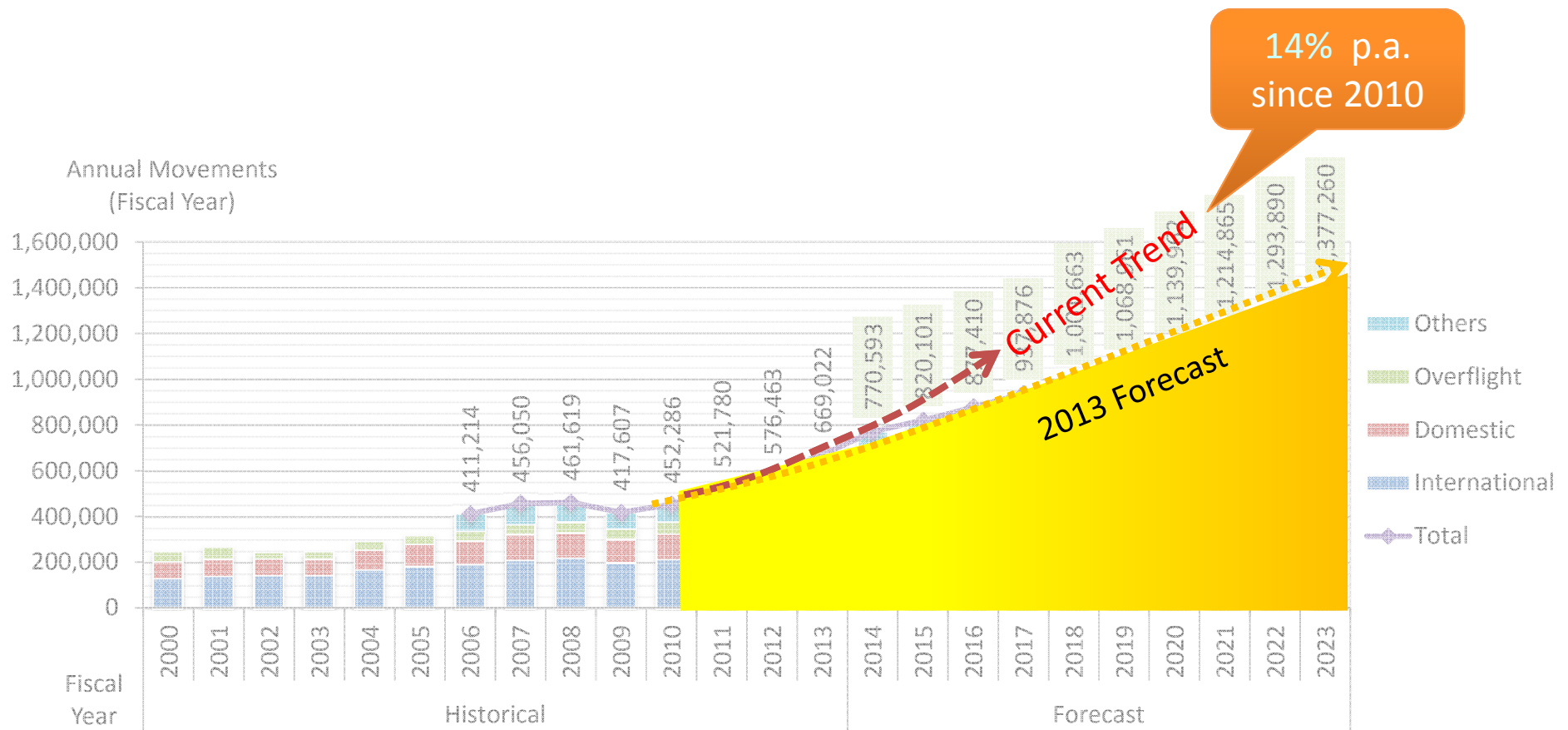
- **Circular 330**
  - *Airspace organization and management*
  - Civil/Military Interoperability
  - ATM Security and ATM in crisis situation
- **ASBU : Bo-FRTO**
  - Improved Operations through Enhanced En-Route Trajectories
    - Establishment of Special Use Airspace (SUA)
    - Regularly reviewed – Size and timing – SUA type, dimensions, activation notice and duration of activation

# Guideline for CMAC Development



- **Asia and Pacific ATM Seamless Plan - Performance Improvement Plan**
  - ATM systems integrated using joint procurement
  - Surveillance data sharing
  - Joint use of NAV aids
  - Common training/procedures

# Overview of Traffic Volume in Thailand



Data of as of 23 Jul 2014

# Traffic Growth by Direction

## North

120,608 Flights/Year  
330 Flights Daily  
Overall GR: **22.5%**

	Volume	GR
Int'l	56%	<b>24.9%</b>
Dom	39%	<b>18.9%</b>
Overfly	5%	<b>24.8%</b>

## East/North East

164,025 Flights/Year  
449 Flights Daily  
Overall GR: **11.8%**

	Volume	GR
Int'l	69%	<b>9.3%</b>
Dom	19%	<b>19.4%</b>
Overfly	12%	<b>20.9%</b>

## West

111,066 Flights/Year  
304 Flights Daily  
Overall GR: **9.9%**

	Volume	GR
Int'l	71%	<b>6.3%</b>
Dom	0%	-
Overfly	29%	<b>19.7%</b>

## South

222,317 Flights/Year  
609 Flights Daily  
Overall GR: **15.5%**

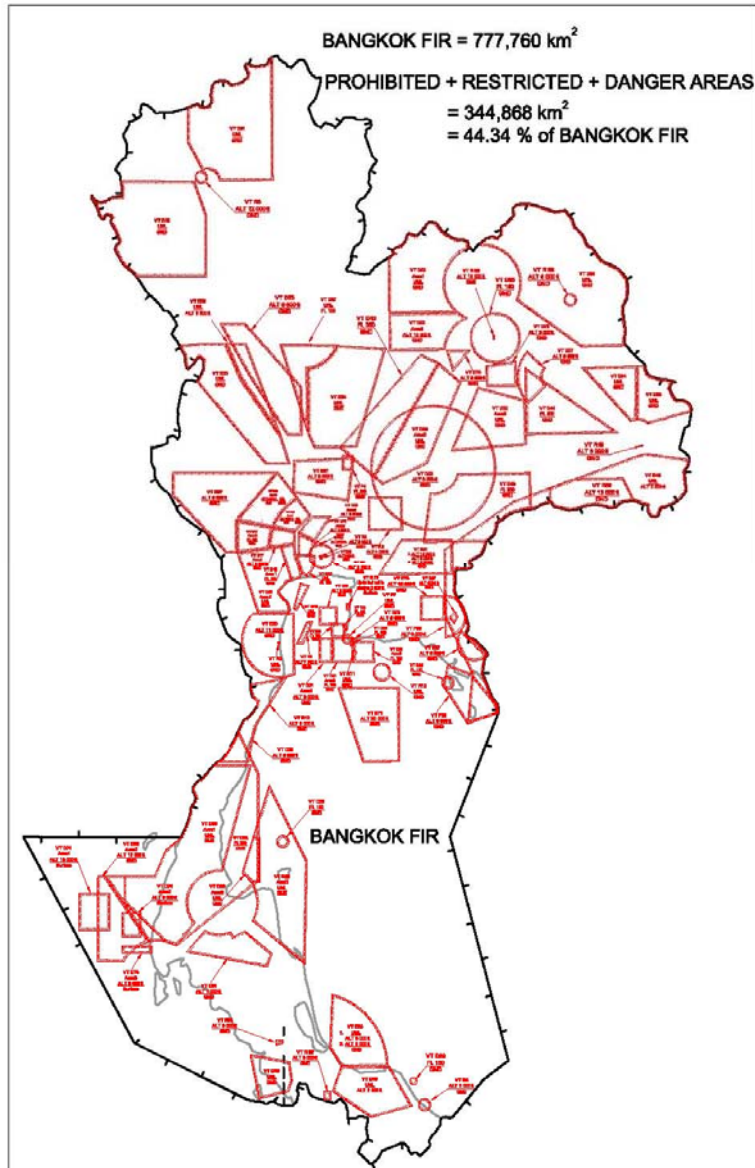
	Volume	GR
Int'l	37%	<b>9.2%</b>
Dom	53%	<b>19.4%</b>
Overfly	10%	<b>20.9%</b>

Note: Annual Growth Rate / Data up to 30 Jun 2014

# Overview of P/D/R Area in Thailand



## PROHIBITED, RESTRICTED AND DANGER AREAS



Date: Mar 2013

- Bangkok FIR 777,760 km<sup>2</sup>
  - Prohibited + Restricted + Danger Area
    - 5 Prohibited Areas
    - 20 Restricted Areas
    - 50s Danger Areas
- 344,868 km<sup>2</sup>  
44% (lateral)

# 3 Levels of Airspace Management



- **Strategic**
  - Establishment of new conditional routes
  - Review requirement/adjust Danger Areas
  - Review/improve CDM of major military exercises
  - Overseeing other levels of FUA/ASM
- **Pre-Tactical**
  - Allocate/plan of airspace use & CDR 1-day in advance
  - Suggest development & improvement plan
- **Tactical**
  - Actual use and share of airspace (weather deviation, shorter flight routes)

# The Provisional-Directorate of Civil/Military ATM Coordination Committee (P-DCMAC)



- Formed in 2012, preceded by Civil-Military Ad-Hoc Committee
- High-level commitment between AEROTHAI & RTAF, responsible for majority of ATM in Thailand  
(Small portion of airspace responsible by: Army, Navy)
- Enable close discussion and expedite implementation and policies between two agencies including the review of special use of airspace (between AEROTHAI and RTAF)



# P-DCMAC



- Focus primarily on Civil-Military cooperation in ATM
- Review and propose appropriate changes in laws and regulations to allow Civil/Military ATM Coordination
- Work in conjunction with Thai Airspace Panel (Chaired by DCA) overseeing overall and broader airspace policy in Thailand
- Future plan to include other military units - Army, Navy
- Other consultative meetings /panels also available Civil-Military ATM issues (Royal Thai Armed Forces)



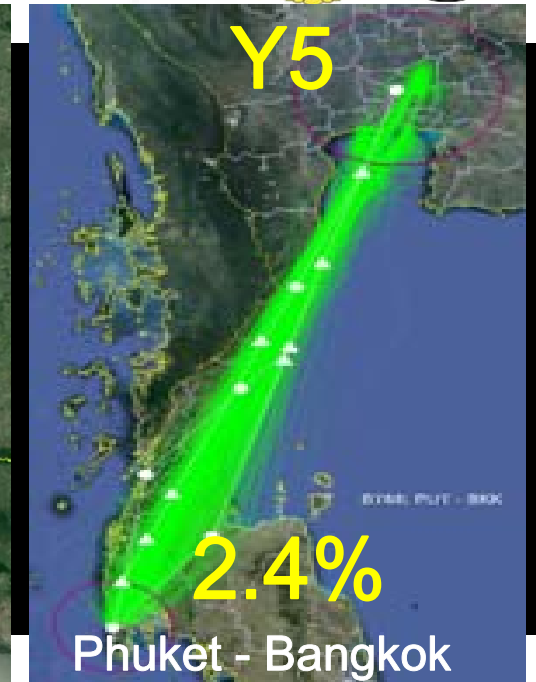
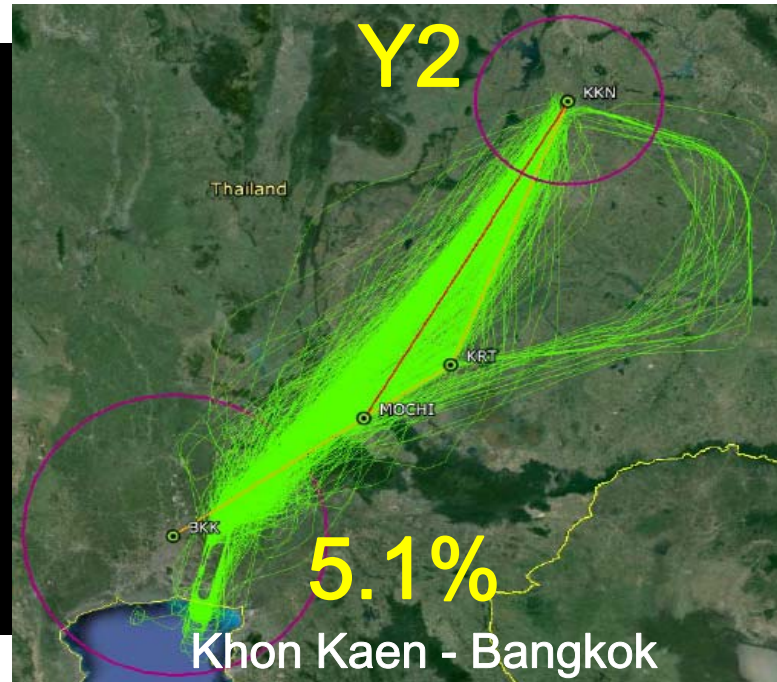
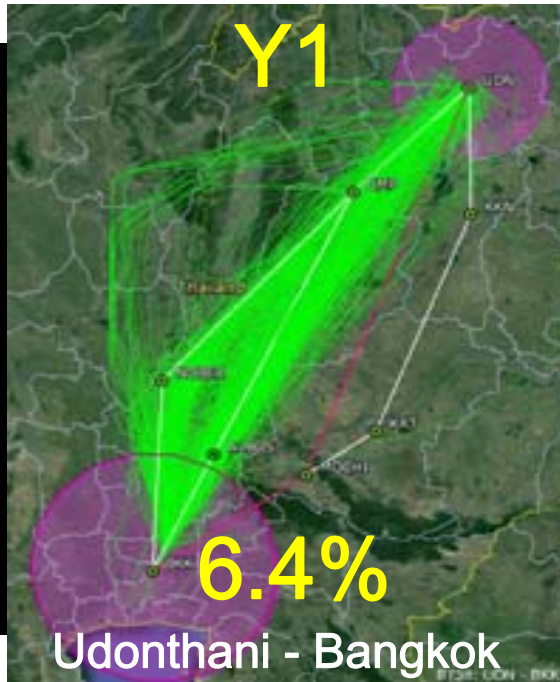
# Expected Benefits



- **Capacity:**
  - more airspace offered allowing increase capacity
- **Environment**
  - reduced fuel burn through shorter routes & better fuel management
- **Efficiency**
  - shorter & optimal routes and more efficient flight planning
- **Safety**

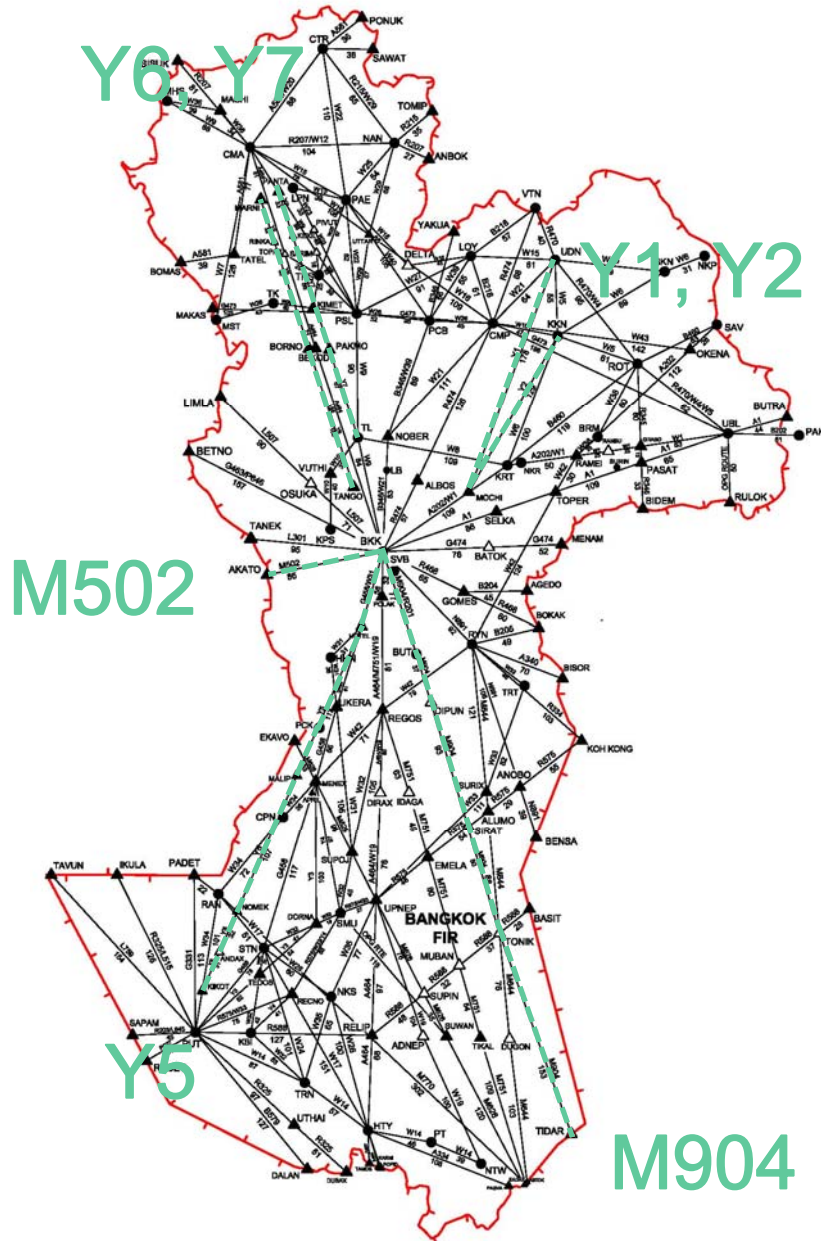


# Fuel Savings

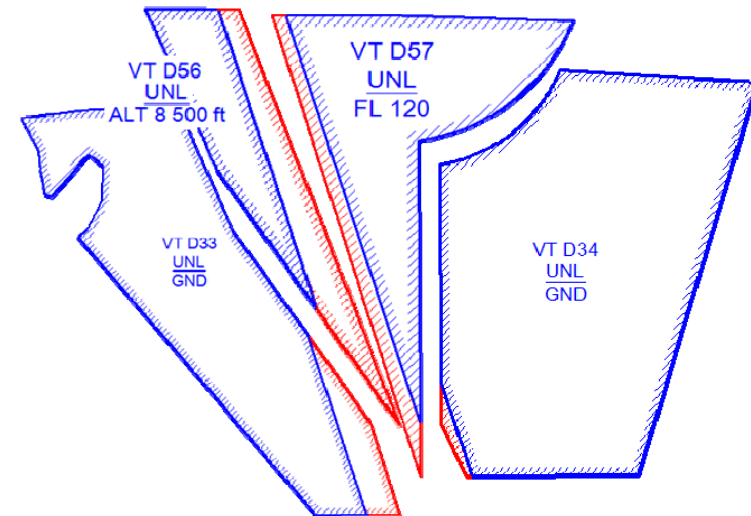


CDR	Route	Fuel Comparison
Y1	Udonthani - Bangkok	3.1-3.3% (W21) 6.1-6.4% (W5-KKN-W6-KRT-W1) 2.8-2.9% (W21-CMP-R474)
Y2	Khon Kaen - Bangkok	5.1% (W6-KRT-W1)
Y5	Phuket - Bangkok	0.9% (G458) 2.0-2.4% (W34-G458)
Y6	Bangkok – Chiang Mai	0.5-0.6% (A464)
Y7	Chiang Mai - Bangkok	3.2-3.9% (W9)

# Past FUA Development



Y6, Y7



Review and **redesign** of Danger Areas to accommodate both civil and military air traffic requirement

# Past FUA Development: CDR



- 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)

Phetchaburi

Bangkok

Chon Buri

Pattaya

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# Established Civil/Military Cooperation



- Through MOA, already in place is military liaison officer
  - Coordinate tactical/real-time use of military area to allow shortcuts, weather deviation,
- Practice Reduced Area of Coordination in some areas
- Engage in planning of major military exercises that affects air traffic management
- Share of surveillance data

# On-going Work



- Currently in the process of reviewing special use of airspace/military airspace requirement
- Aim to develop flexible airspace structures
  - CDR, TSA, TRA, and possibly CBA in the future
  - Effective time and altitude activated flexibly and daily based on coordination of actual use
- **Setting up/Trial of Joint ASM Unit**
  - Joint Civil-Military Pre-Tactical Planning Unit (similar to Airspace Management Cell)
  - Daily airspace plan through NOTAMs

# On-going Work



- Cooperation in areas other than ASM

## Civil/Military Interoperability

- Share of C/N/S – infrastructure resources

## ATM Security and ATM in crisis situation

- Discussion and cooperation between civil and military for Contingency Plan and ATM Backup System

# Future Plan



- Develop/improve priority & negotiation process of airspace use
- Continue process of reviewing and improving Flexible Use of Airspace
  - Explore possibility of Cross Border Area
- Incorporate supporting tool - Airspace Booking and Management Software
- Common training/procedures in ATM



Questions?

