



| ICAO BANGKOK

UNITING AVIATION

Regional Challenges, Impacts and Crisis Management

Len Wicks

*Regional Officer, Air Traffic Management,
International Civil Aviation Organization (ICAO)*

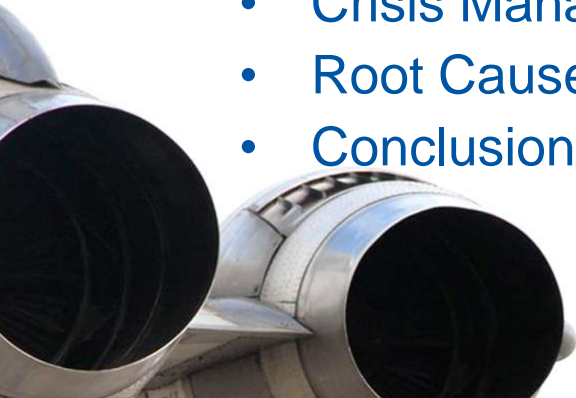
Abu Dhabi, UAE, 09 December 2019





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- Challenges Related to Airspace
- Major Impacts on Air Traffic
- Crisis Management
- Root Causes
- Conclusions



Civil-Military High Level Issues

- Focussing on efficiency only, instead of the primary goal!
 - Although civil-military cooperation is often fixated on airspace efficiency (capacity and the environmental measures such as flexible use airspace - FUA), **safety** considerations are paramount (civil-military cooperation \neq FUA)!

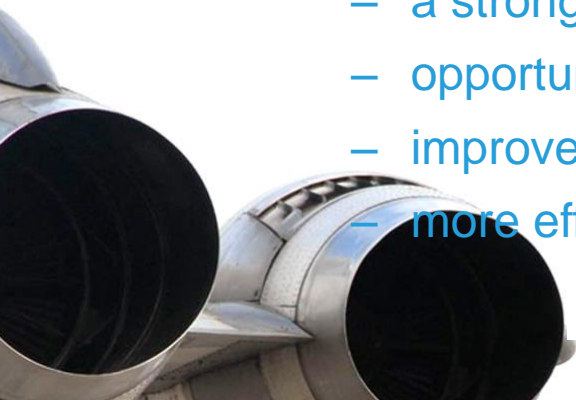




Civil-Military High Level Issues

- ‘Win-Win’ benefits for military agencies aren’t always emphasised:
 - supporting civil air navigation and protecting the environment is **consistent with the military mission to defend the nation**;
 - a strong economy may provide extra **resources** for the military;
 - opportunity to reduce and **share costs** utilizing advanced civil systems;
 - improved **access** to ‘civil airspace’* for military operations; and
 - more effective **intelligence** by using and incorporating civil data.

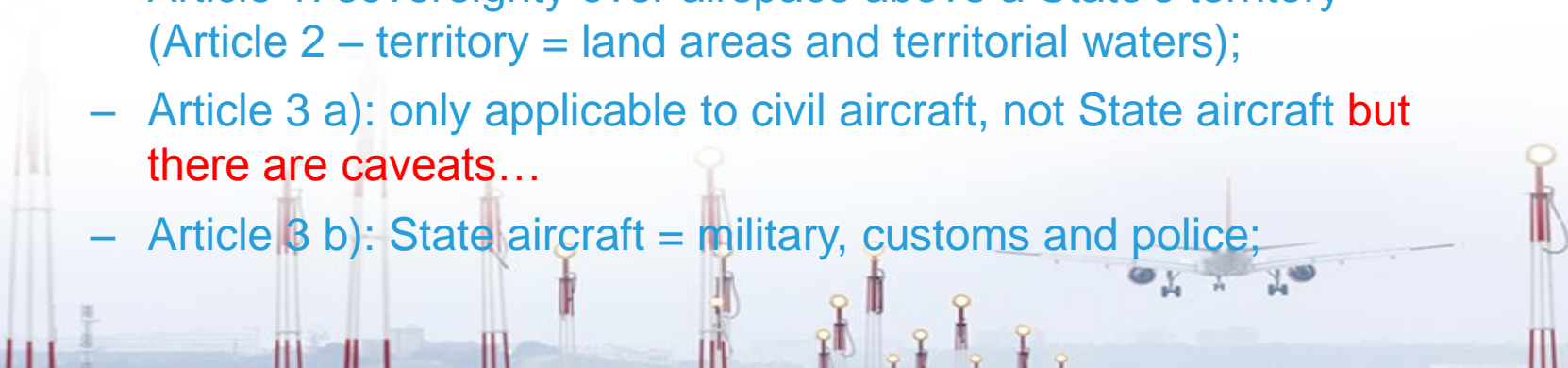
*including airspace with special requirements such as mandates





Civil-Military High Level Issues

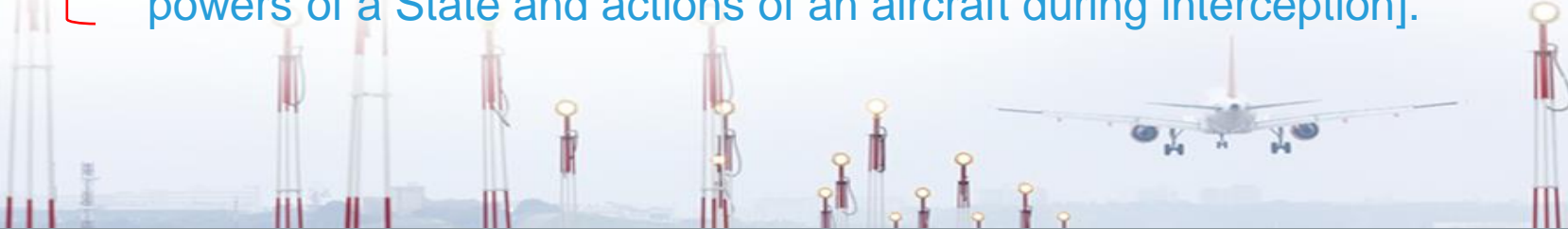
- State aircraft operators are often unaware of the State's international obligations, such as those under the Convention on International Civil Aviation (the 'Chicago Convention'):
 - Article 1: sovereignty over airspace above a State's territory (Article 2 – territory = land areas and territorial waters);
 - Article 3 a): only applicable to civil aircraft, not State aircraft **but there are caveats...**
 - Article 3 b): State aircraft = military, customs and police;



Civil-Military High Level Issues

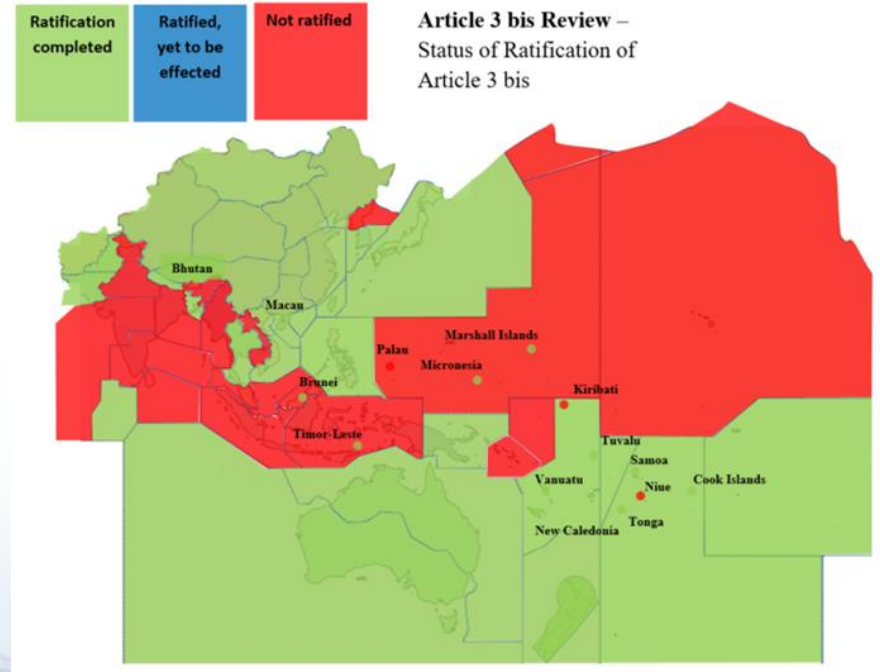
The caveats involve the interaction between civil and military systems!

- Article 3 c): no flight by a State aircraft over another State's territory, except by agreement and in accordance with any terms; and
- Article 3 d) State aircraft regulations will have 'due regard' for the safety of civil aircraft; and...
- Article 3 *bis* a): refrain from use of weapons against civil aircraft and no endangerment during interception [Article 3 *bis* b) and c) relate to powers of a State and actions of an aircraft during interception].



Civil-Military High Level Issues

- Several APAC States (or States providing ATS within APAC airspace) haven't ratified the safety-critical civil-military Article 3 *bis* of the Convention!





Civil-Military High Level Issues

- Many States are unaware of their obligations under the Annexes that relate to civil-military cooperation:
 - Annex 2: 3.3.1.2 flight plan **coordination** with military authorities; and
 - Annex 11:
 - 2.19.1 coordinate hazardous activities with ATS authorities concerned and coordinate early enough for promulgation compliant with Annex 15;
 - 2.19.2 **minimising interference** with normal operations of civil aircraft;
 - 2.19.2.1 minimising the **size of military airspace**; and
 - 2.19.2.1 civil-military early **coordination** and direct **communication**.

Civil-Military High Level Issues

- Some States are aware of their obligations under the Annexes that relate to civil-military cooperation, but government or military officials sometimes appear to avoid compliance with specific requirements, so it is left to ICAO to follow up...

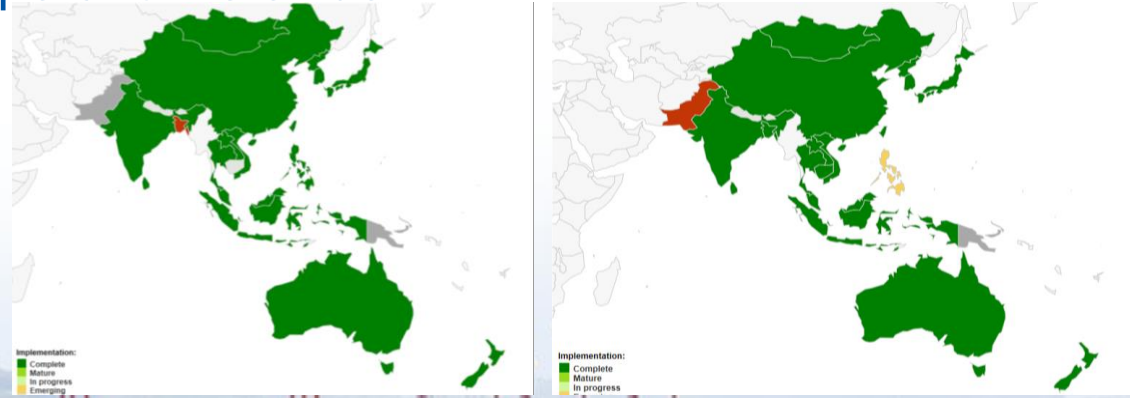
2.19 Coordination of activities potentially hazardous to civil aircraft

2.19.1 The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of a State or over the high seas, shall be coordinated with the appropriate air traffic services authorities. The coordination shall be effected early enough to permit timely promulgation of information regarding the activities in accordance with the provisions of Annex 15.



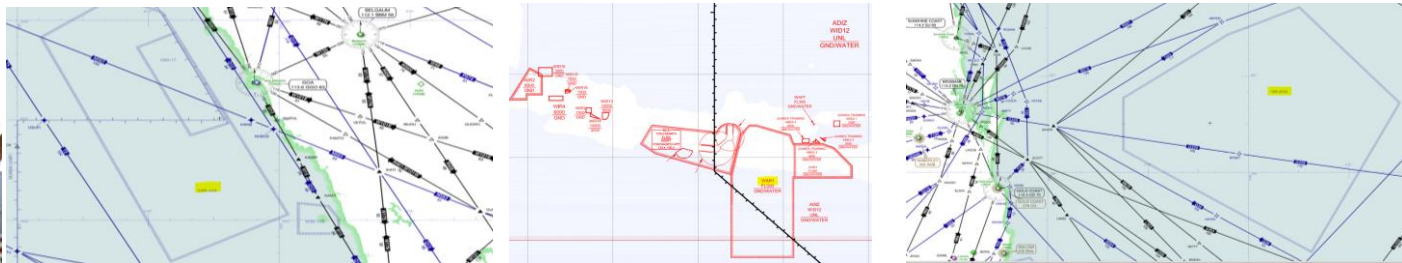
Civil-Military High Level Issues

- State sensitivity to reporting – these maps show many States reporting complete implementation of strategic and tactical civil-military cooperation; yet in some cases severe delays from poor civil-military cooperation is evident.



Challenges Related to Airspace

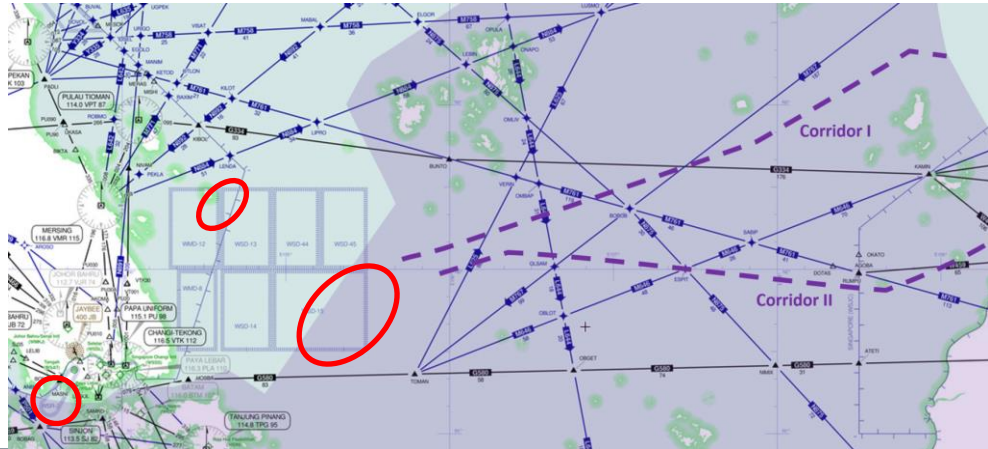
- According to the definitions in Annex 2/11 (Chapter 1):
 - Special Use Airspace (SUA) may be established in uncontrolled or controlled airspace to superimpose additional flight requirements, but only **danger areas** may be designated in international airspace (not prohibited or restricted areas); yet...



Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

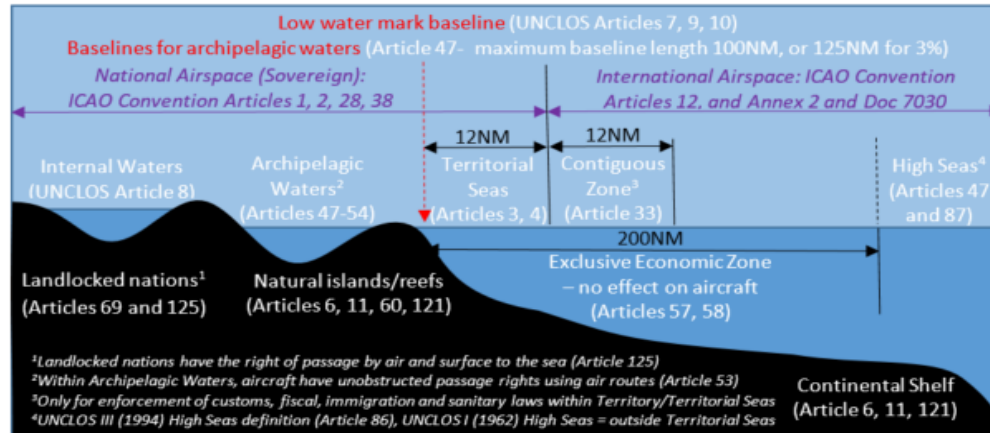
Challenges Related to Airspace

According to Annex 15, 2.1.2, States may only promulgate aeronautical data [which includes airspace designation] within their own territory and FIRs; but this is not always complied with.



Challenges Related to Airspace

- Under the Convention on International Civil Aviation and the UN Convention on Law of the Sea (UNCLOS), there is **no power** to prohibit the transit of civil or State aircraft in international airspace.





Challenges Related to Airspace

- Controlled airspace concerns raised at the APAC ATM Subgroup:

- failure to provide an ATC clearance in international airspace to State aircraft; and

ATM/SG/5

Report on Agenda Items

Freedom of Overflight and Navigation (IP21)

5.23 The USA submitted IP21 to the meeting, which was intended to raise awareness of ANSPs of freedom of air navigation principles and ATC services provided to State aircraft operating in delegated international airspace in accordance with international law, rules and regulations.

5.24 China submitted the following statement: the Chicago Convention shall be applicable only to civil aircraft and the ATM/SG/5 was not the appropriate arena to discuss issues related to the freedom of overflight of State aircraft. ICAO submitted in response: the *Convention on International Civil Aviation* Article 3 *bis* deals with obligations of military aircraft with regard to civil aircraft and ICAO has been actively assisting States to implement civil/military cooperation, which has been a vital discussion point at the ATM/SG since its inception. The IP provides information on the responsibilities of a civil ANSP to any aircraft operating in airspace delegated to the State over the high seas to provide ATS by ICAO.



Challenges Related to Airspace

- Controlled airspace concerns raised at the APAC ATM Subgroup:

- entry to controlled airspace within international airspace without an ATC clearance by unknown aircraft.

ATM/SG/6

Report on Agenda Items

'Due Regard' Military Operations in International Airspace (WP27, Flimsy 06)

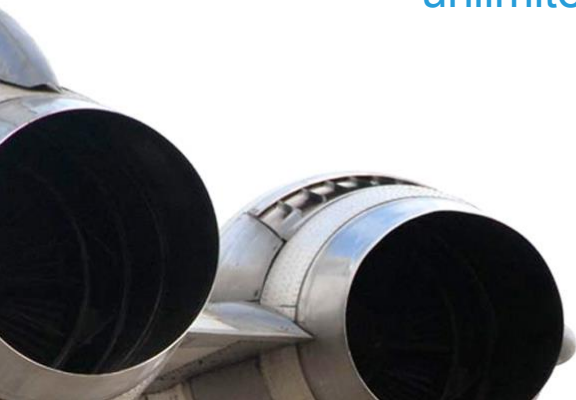
- 5.15 India discussed concerns related to the frequent sighting of unknown aircraft – presumed to be military – within controlled airspace over the high seas.
- 5.16 India recalled the provisions in the *Convention on International Civil Aviation* related to prevention of endangerment of civil aircraft by State aircraft – Article 3. These established the requirement for 'due regard for the safety of navigation of civil aircraft', and specifically in Article 3 *bis*, civil aircraft may not be endangered during any interception, and State aircraft must refrain from the use of weapons.
- 5.17 WP27 proposed a Conclusion, which suggested that the operation of military aircraft over the high seas be conducted in accordance with the UN Convention on the Law of the Sea (UNCLOS), and an ATC clearance with regard to RVSM levels. The meeting noted that the intent was to improve safety, but also observed that there was no current mechanism to require State aircraft operating in international airspace to comply with Annex 2 *Rules of the Air* in respect of clearance to enter SUA or controlled airspace (Annex 2, Section 3.1.10 and 3.6.1 respectively).



Challenges Related to Airspace

Major delays and disruptions due to short-notice activation of military/State operations and/or Special Use Airspace (SUA):

- this example from Myanmar closed three ATS routes with an ‘unlimited’ upper limit for ‘gun firing’ with only four hours of notice.



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CHA0036 250333
GG VYYYAYX
250333 VYYYNYX
(A0072/18 NOTAMN
Q)VVYF/QWMLW/IV/BO/W/000/999/1633N09416E020
A)VVYF B)1804252330 C)1805091130
D)BTN 2330/1130 UTC ON 25,26,27 APR AND 08, 09 MAY 2018
E)GUN FIRING EXER WILL TAKE PLACE AT AREA BOUNDED
BY 1633N 09416E, 1739N 09416E, 1739N, 09458E, 1633N, 09458E,
NO OVER FLYING ACTIVITY IS PERMISSABLE WITHIN ABOVE MENTIONED GU
N
FIRING AREA.DURING HOURS OF ACTIVITY THE FOLLOWING ATS ROUTES ARE
REROUTED/NOT AVBL IN YANGON FIR.
1)P646 NOT AVBL BETWEEN IBITA AND Poxem.ALTN ROUTES: IBITA DCT KAMK
O
DCT Poxem (BIDIRECTIONAL )
2)N895 NOT AVBL BETWEEN SAGOD AND Poxem.ALTN ROUTES:SAGOD DCT KAMKO
DCT Poxem (BIDIRECTIONAL)
3)G472 NOT AVBL BETWEEN SAGOD AND BGO VOR.ALTN ROUTES:SAGOD DCT OTA
DA
DCT BGO VOR (BIDIRECTIONAL)
4)W9 NOT AVBL
FIGND G1UNL)
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Challenges Related to Airspace

- Concerns related to the unilateral imposition of an Air Defence Identification Zones (ADIZ) raised at the ATM Subgroup:
 - the ADIZ was not consulted with ICAO, affected States or airspace users (notably, the ADIZ crossed a major traffic flow and was partly established within the Flight Information Regions (FIRs) of two neighbouring States, without consultation);
 - the ADIZ extended into international (High Seas) airspace [apparently coincident with the Bangladesh Exclusive Economic Zone (EEZ), which had no effect on airspace according to the United Nations Convention on the Law of the Sea 1982] – this airspace being the responsibility of another State;



Challenges Related to Airspace

- the consequences of the ADIZ establishment – which was not defined in the ICAO Convention or its Standards and Recommended Practices (SARPs), despite assertions of this by Bangladesh – could lead to significant efficiency and safety issues;
- the ADIZ imposed conditions of flight which had no legal basis in international law (but which were subsequently withdrawn by Bangladesh);
- the promulgation included unclear references such as the need for an Air Defence Code (ADC) when aircraft '*fly towards the land mass of Bangladesh*';
- the promulgation was non-compliant with Annex 15 in terms of promulgation of airspace information and procedures in airspace that was not the responsibility of Bangladesh; and
- responsibilities of aircrews were unclear, with major information missing such as ATS unit contact details and reference to guard frequency 121.5 MHz (such reference subsequently deleted by Bangladesh).

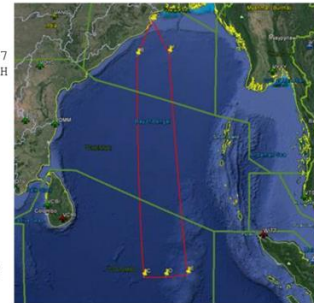


Major Impacts on Air Traffic

Delays and disruptions due to short-notice activation of military/State operations and/or Special Use Airspace (SUA):

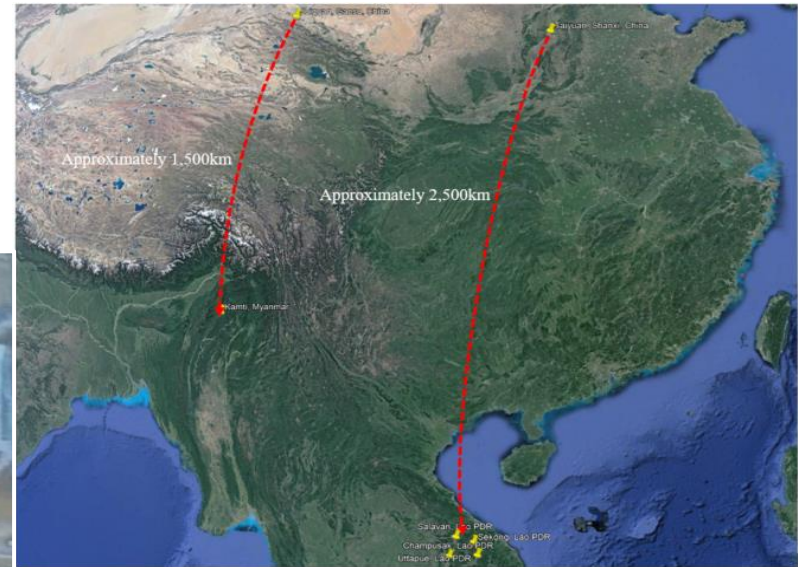
- this example from Pakistan affected many ATS routes on two major traffic flows with an 'unlimited' upper limit for hours, without early notice or consideration of the adverse consequences on civil traffic.

A2758/16 NOTAMN
Q) VOMF/QWELW/IV/NBO/W/000/999/
A) VOMF/VECF B) 1701020400 C) 1701060700
D) BTN 0400-0800 ON 02 AND BTN 0300-0700 ON 06 JAN 2017
E) EXPERIMENTAL FLT VEHICLE LAUNCH WILL TAKE PLACE WITH
THE FLW
DETAILS
THE COORD OF THE DANGER ZONE IS AS FLW
A.)204825N 0870034E
B.)181221N 0860706E
C.)024036N 0870517E
D.)024424N 0883749E
E.)025548N 0900944E
F.)182409N 0883026E
G.)204909N 0870921E
A.)204825N 0870034E
NO OVEFLYING ACTIVITY IS PERMISSIBLE WI THE ABOVE
MENTIONED AREAS DURING THE HOURS OF LAUNCH THE FLW ATS
RTE AREA REROUTED/NOT AVBL
1. A465 NOT AVBL BTN VVZ AND CEA VOR
ALTN ROUTE: VVZ VOR-DCT-MEPOL-W41-BBS VOR-W50-JH-DCT-AGROM-G450-



Major Impacts on Air Traffic

Over the past two years, APANPIRG has expressed its grave concern for the safety of air navigation (and the public), due to space re-entry debris from Long March ballistic launches.

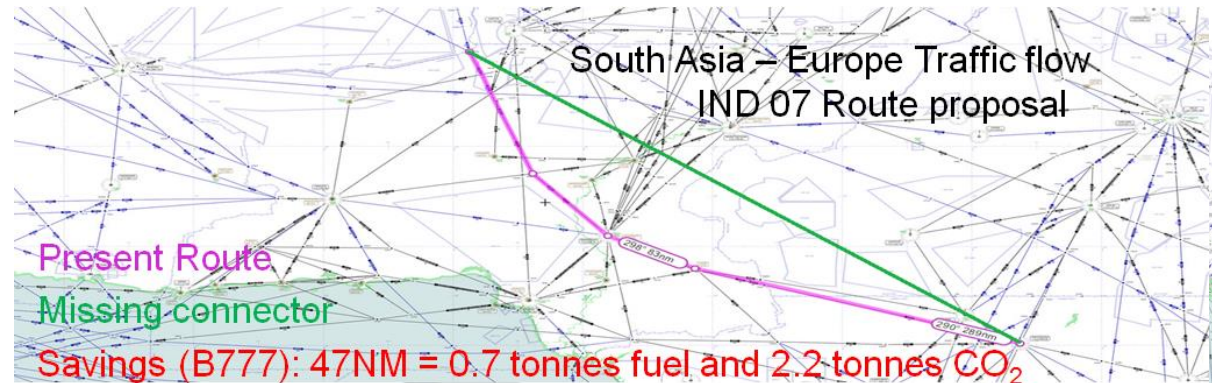




Major Impacts on Air Traffic

Asia/Pacific civil-military issues:

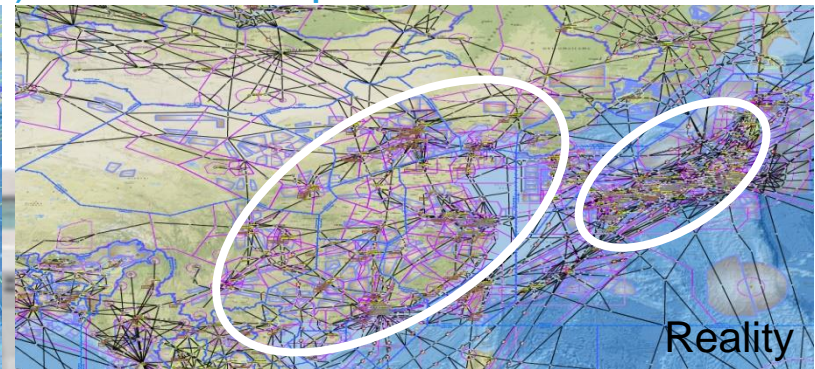
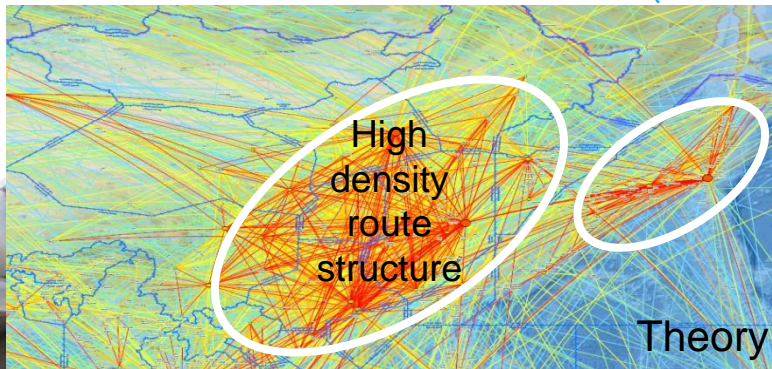
- lack of direct route availability (example – India/Pakistan);



Major Impacts on Air Traffic

Asia/Pacific civil-military issues:

- lack of international route availability and entry waypoints; and
- horizontal and vertical (RVSM) transition requirements.





Major Impacts on Air Traffic

Asia/Pacific civil-military issues:

- Major disruptions to East Asian traffic have been evident since 2015, regardless of traffic and weather conditions, indicating a lack of ATM flexibility by the State’s authorities, and the short-notice closure of airspace.

IFALPA Annex 29 Part 3

October 2018
29-3-PAC-4

ICAO Region/ANP: PAC

IFALPA Region: NOP

Subsection	IFALPA Deficiency	Action Required/Remarks
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A461 & A470
(BEIJING AND SHANGHAI)

CRITICALLY DEFICIENT BLACK [March 2018]

The Air Traffic Flow Management within the People's Republic of China has become so saturated that even on a normal day (no weather or airspace issues), there are significant delays to scheduled services between Hong Kong and the Mainland, specifically air routes A461 and A470 (Beijing and Shanghai). Airspace management problems can lead to delays in excess of 6 hours for flights departing from Hong Kong to Shanghai and/or Beijing.





Crisis Management

Recently, poor civil-military cooperation became evident during a contingency operation:





Crisis Management

Recently, poor civil-military cooperation became evident during a contingency operation:

Pakistan Airspace Contingency Operations

The major lessons from the Pakistan airspace ATM contingency operation were:

- States ignored their obligations to recognize international airspace and facilitate traffic through this airspace – where they are not entitled to restrict aircraft;





Crisis Management

Recently, poor civil-military cooperation became evident during a contingency operation:

Pakistan Airspace Contingency Operations

- The cost of this closure was in excess of USD400,000 every day to airlines according to IATA. The conservatively estimated cumulative extra costs were in excess of USD 55 million. This does not take into account the cost to ANSPs or travellers.
- The daily cost to the environment based on 295 disrupted flights was 560,551 kg of wasted fuel, 1,771,342 kg of extra CO₂ and 10,586 kg of NOx based on EUROCONTROL estimates. Over the 20 weeks (27 February – 17 July 2019) the operation was in effect, this equals 78,477 t. of fuel, 247,940 t. of CO₂ and 1,482 of NOx.





Crisis Management

Recently, poor civil-military cooperation became evident during a contingency operation:

Pakistan Airspace Contingency Operations

When the contingency operation was over, both India and Pakistan ANSPs ignored the special previously-agreed contingency plan that had been devised to ensure a safe recovery, after instructions from senior government officials, requiring ICAO and IATA intervention.

The main lesson learnt is that we cannot rely on discussions and agreements with civil officials, in circumstances where military/security officials hold ultimate power in governments and may not fully understand the consequences of their actions!





Root Causes

Why do we have so many instances of poor regional civil-military cooperation? Every nation has a different situation, but the following generic problems have been identified:

- lack of **understanding** or **empathy** for the other party's mission, and how that affects the nation ('this is my airspace' approach) is the biggest factor;





Root Causes

- lack of mutual **trust** and confidence between civil and military operations;
- lack of **knowledge** that airspace is a continuum - a common and limited resource for all civil and military users; and





Root Causes

- lack of **political will** to ensure national and international civil-military cooperation with a whole-of-government approach*

**Note – APAC has recently endorsed a requirement in the Regional Air Navigation Plan for National Air Navigation Plans, which establishes a whole-of-government systematic framework.*





Conclusions

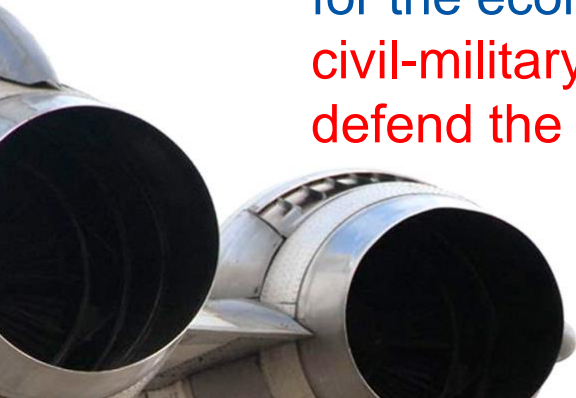
- Safety is a key objective of civil-military cooperation, while efficiency and mission effectiveness are also drivers.
- Military decision-makers need to be more aware of their State's international obligations under the Conventions and their Annexes, and global and regional policy on civil-military cooperation, to ensure compliance by all parties.





Conclusions

- Successful civil-military cooperation needs a whole-of government approach.
- Supporting a State's civil air navigation infrastructure is crucial for the economy and capability of the nation, thus...
civil-military cooperation is consistent with the military mission to defend the nation's interests, and is part of national security.





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Montréal

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Dakar

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North Atlantic
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(APAC) Sub-office
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THANK YOU