



International Civil Aviation Organization

**The Second Meeting of the Ad Hoc Afghanistan Contingency Group Meeting
(AHACG/2)**

Istanbul, Turkey, 17-19 November 2014

Agenda Item 3: Europe- Southeast/South Asia Contingency Planning (scenarios, procedures)

EUROPE-ASIA MAJOR TRAFFIC FLOW CONTINGENCY PLANNING

(Presented by the International Air Transport Association (IATA))

SUMMARY

This paper proposes parameters and routes to assist the Islamic Republic of Afghanistan's contingency planning for the management of overflying air traffic through the Kabul Flight Information Region, given a scenario where Air Traffic Control services are not available within that airspace.

1. INTRODUCTION

- 1.1. This Working Paper considers an operational environment where air traffic control services are not being provided within the Kabul Flight Information Region (FIR) the paper provides only one option that will be fully evaluated by airlines and proposes routes and parameters to allow civil high altitude overflying air traffic to traverse the FIR. This working paper is not representative of what individual airlines will choose to fly, as they will carry out their own pre-flight safety, security and business assessments.
- 1.2. Consideration is given to avoiding the requirement to divert around the Kabul FIR, which would place a significant burden on adjacent ANSPs and airspace users.
- 1.3. In preparing this paper, IATA made reference to information provided during AHACG/1, some of which has been reproduced with gratitude below, and consulted with some airlines and ANSPs for advice.

2. DISCUSSION

2.1. Possible Scenarios

Based on AHACG/1 the daily traffic demand is relatively stable at 300 flights per day but subject to Jetstream effects. As a result there are a set of scenarios possible to address the situation:

- Non-avoidance of Kabul FIR (discussed in 2.2)
- Avoidance of Kabul FIR to the North
 - Utilizing the current ATS routes via China are far from optimum due to increase in flight time, Additionally these routes are very difficult for airlines to fly i.e. L888

& Y1 with different aircraft types due to high terrain and decompression/engine-out procedures. Additional flexibility and routing options would be required for Northern avoidance to address these concerns as well as the possibility of utilization due to weather/winds.

- Avoidance of Kabul FIR to the South
 - ANSP's to provide a reduction in current ATM restrictions.
 - Required FLAS restrictions to address safety concerns evaluated for validity during times of actual need, vetted through stakeholders to determine operational capabilities.
 - Additional entry/exit points need to be provided to provide airlines the flexibility to manage route planning, slot times, enroute weather, winds etc.

2.2. Assumptions for non-avoidance of Kabul FIR

The following assumptions were made during the preparation of this scenario but should not be considered as the only option.

- Applicable within sovereign Afghan Airspace under the authority of the Afghanistan Civil Aviation Authority.
- No ATC service is provided within Afghanistan and a contingency plan is therefore required that ensures safe transit of civil air traffic.
- There are no Communications (COM) or Surveillance (SUR) services provided within the Kabul FIR.
- It is applicable exclusively to air traffic overlying Afghanistan at FL290 and above.
- There is no hazardous or segregated airspace above FL280.
- All overflying aircraft are certified to an RNAV 10 ops spec or better.
- RVSM Flight Levels are available.
- All contingency routes and airspace classification will be designated as per ICAO Annex 11: Air Traffic Services, Chapter 2.
- State Aircraft will operate with "due regard" to civil air traffic.
- BOBCAT and the EUROCONTROL Network Management Operations Center (NMOC) are willing to provide Air Traffic Flow Management demand metering.
- Adjacent States are willing to collaborate with BOBCAT, the NMOC and each other to ensure the safe operation of this plan.
- Proper safety assessments completed that can be shared with all airspace users.

2.3. Airspace User Concerns

The following airspace user concerns were made known to IATA:

- A safe operational environment is necessary for airspace users to operate within a volume of airspace. There must be no risk of encountering uncontrolled VFR or IFR air traffic and assurance that any state aircraft can and will operate with due regard to civil air traffic at all altitudes.
- Airspace classifications of "G" or "F" will likely be avoided by airlines due to safety and security concerns.
- It would be difficult for airspace users to circumnavigate Afghanistan to the north due to lack of flexibility to address environmental and operational challenges.
- There is some concern expressed to the potential of exceeding the existing capacity of surrounding FIRs adjacent to Kabul FIR.
- Insufficient information provided by states as to provide airlines the ability to assess safety and security concerns.

2.4. Air Traffic Demand

The following air traffic demand parameters were extracted from information provided during AHACG/1:

- Daily traffic demand is relatively stable at 300 flights per day but subject to Jetstream effects.
- Hourly Peak demand (flights / hour):
 - 35 bi-directional
 - 25 Westbound
 - 15 eastbound
 - Normal demand: 15
- Traffic data shows a biased distribution by direction of flight

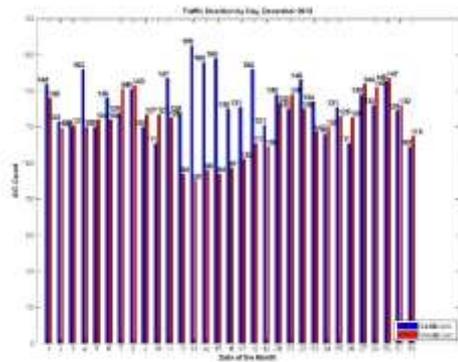


Figure 1 Average Hourly Distribution of Traffic, Dec 2013

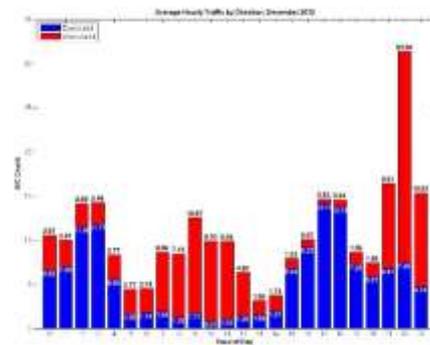


Figure 2 Traffic Distribution by Day, Dec 2013

2.5. Demand - Capacity Balancing

The proposal should meet the anticipated demand:

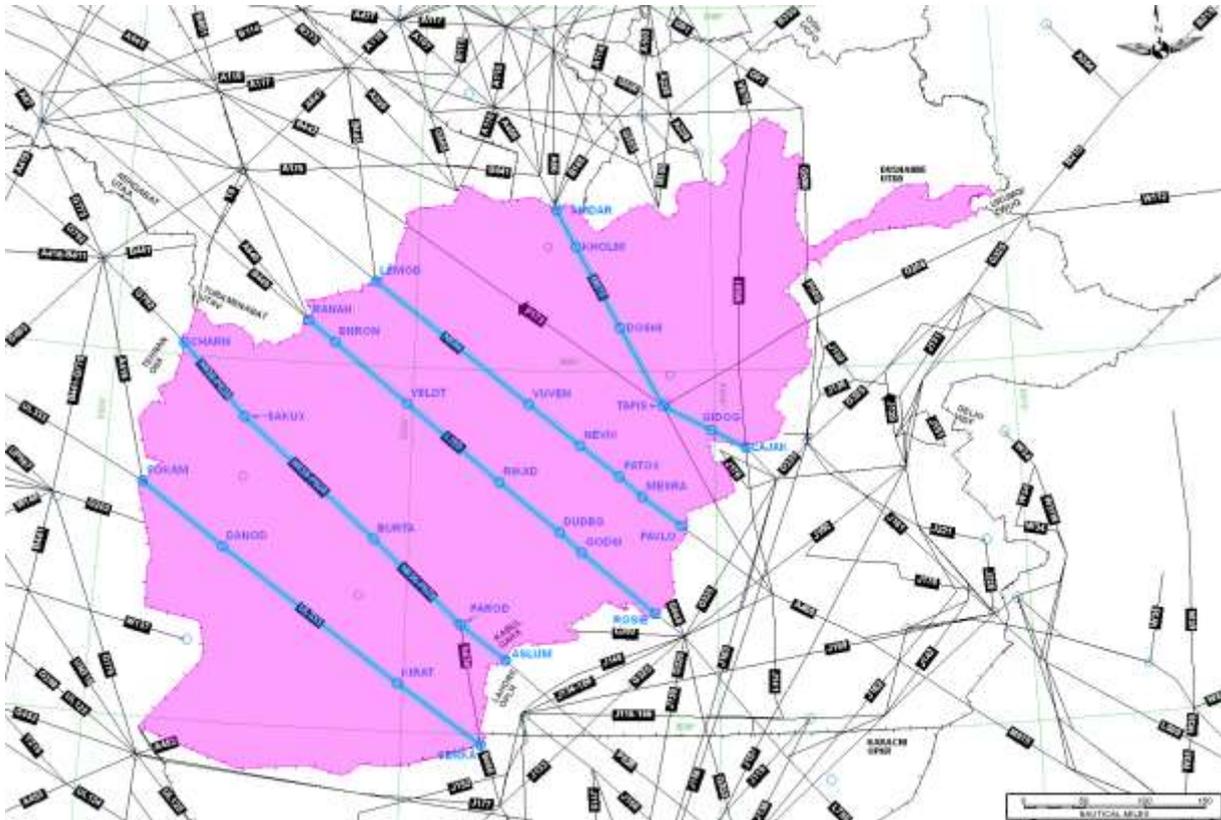
Direction	Peak Hourly Demand flights / hour	Hourly Capacity flights / hour	Calculation
Eastbound	15	80+	4 flights / hour / FL / track 5 tracks 4 levels (310, 330, 350, 370,+) = 4x5x4 = 80
Westbound	25	60+	4 flights / hour / FL / track 5 tracks 3+ levels ((300), 320, 340, 360,(380)) =4x5x3+ = 60

2.6. ATC Separation Rule Proposal

The following section shows PANS-ATM separation criteria applicable to RNAV 10 aircraft and contingency plan parameters proposed to mitigate the absence of ATC intervention during the Kabul FIR transit:

	PANS-ATM Requirements	Contingency Plan
Lateral Separation	50 NM (non-intersecting)	
Vertical Separation	1000 feet (RVSM). No altitude changes from plan are allowed	
Longitudinal Separation	10 Minutes <ul style="list-style-type: none"> Requires fixed Mach, identical track 	15 Minutes <ul style="list-style-type: none"> Fixed Mach, identical track Mitigates lack of ATC intervention over Afghanistan ATFM metering planned by NMOC / BOBCAT and implemented by affected ACCs and airspace users.

2.7. Proposed Track Design and ATC Procedures



The following bi-directional tracks and procedures are proposed:

1. SOKAM UL333 SERKA
2. CHARN P628 ASLUM
3. RANAH L750 ROSIE
4. LEMOD N644 PAVLO
5. AMDAR M875 TAPIS L509 LAJAK

All tracks are laterally separated by a minimum of 50 NM to avoid altitude coordination or Flight Level Allocation requirements. Altitudes are assigned based on proper altitude for direction of flight (even Flight Levels for Westbound flights, odd Flight Levels for Eastbound flights.)

ATC / ATFM Coordination

- The ATFM function will need to inform operators and ACCs of times, route and altitudes to be met.
- The upstream ACC adjacent to Kabul FIR will need to provide an ATC coordination estimate to the downstream (receiving) ACC to include Aircraft identification, type, Mach, origin, route, destination, estimated time at a boundary waypoint that will have been agreed, flight level. This coordination will be carried out via dedicated recorded voice line or other agreed method.

ATFM Procedure:

- BOBCAT (for westbound flights) & NMOC (for eastbound flights) provide flow metering to 15 minutes in trail per flight level per track.
- Upstream ACCs, aircraft operators and flight crews are made aware of the Required Time of Arrival at the metering point and ensure that the times and levels are respected.

ATC Procedure:

The ACC delivering traffic:

- Assigns Airspeed to aircraft based on aircraft performance as to maintain required longitudinal spacing and appropriate FL
- Ensures that the aircraft has been cleared on the airway(s) as planned by the ATFM function
- Ensures minimum longitudinal spacing of 15 minutes between aircraft on the same track at the same Flight Level
- Informs the receiving ACC of inbound traffic and provides an inbound boundary waypoint estimate
- Instructs the aircraft to contact the receiving ACC as per agreement.

NAV

- Aircraft operate along required airways using RNAV 10 or better.

COM

- The upstream ACC will instruct the aircraft to contact the receiving ACC via VHF voice radio at a point that will have been coordinated between the concerned ACCs, corresponding to the point at which the aircraft enters VHF radio coverage.
- The aircraft will monitor 121.5 and an agreed-upon air to air frequency (123.45?).
- The aircraft will broadcast the following message¹:
 - ALL STATIONS
 - THIS IS [CALLSIGN] IN THE KABUL FIR
 - FL ...
 - [WESTBOUND | EASTBOUND] ON [AIRWAY]
 - ESTIMATING [WAYPOINT] AT [UTC TIME]
 - [CALLSIGN]
 - FL ...
 - IN THE KABUL FIR
- in the English language on the agreed-upon air-air VHF radio frequency at the following times:
 - 10 minutes prior to entering the Kabul FIR
 - 10 minutes prior to crossing a waypoint within the Kabul FIR
 - At not less than 20 minute intervals
 - At any other time considered necessary by the pilot
- Consideration should be given to the following:
 - Using air-ground satellite voice for supplementary or emergency air-ground communications.
 - Using CPDLC to an ATC agency that has agreed to provide a coordination service.

SUR

- Consideration should be given to the mandatory use of ACAS.

¹ This procedure is an adaptation of the existing IATA in-Flight Broadcast Procedure (IFBP)

2.8. In-Flight Contingencies

- In case of a non-critical in-flight emergency, the aircraft would proceed as cleared until leaving the Kabul FIR.
- In case of a critical in-flight emergency (de-pressurization, etc.), aircraft would follow ICAO emergency descent procedures and proceed at the discretion of the pilot in command.
- In case of a medical emergency the aircraft would proceed as cleared until leaving the Kabul FIR.

2.9. Safety Management

The following aspects of this proposal are used to mitigate identified safety risks:

- Route design:
 - Non-intersecting 50 NM spacing. No routes cross, join or diverge.
- Longitudinal separation:
 - Assigned Airspeed by ATC prior to entering FIR based on aircraft performance as to maintain required longitudinal spacing
 - Assigned 15 minute longitudinal separation (versus PANS ATM required 10 minutes using fixed Mach on same identical track)
 - Any erosion of separation should still provide the ICAO minimum separation of 10 minutes. Given a nominal transit time of 50 minutes, a sustained closure speed of 55 knots (M05) would be required to reduce 15 minutes to 10.
- Aircraft IATA In Flight Traffic Broadcast procedure for pilot situational awareness
- No changes to negotiated flight routes and levels until past Kabul FIR
- Flights occur in controlled airspace, with no uncontrolled VFR traffic allowed.

3. ACTION BY THE MEETING

3.1. The meeting is invited to:

- a) Note IATA's appreciation for the work being done at this meeting.
- b) Note the information contained in this working paper.
- c) Consider the proposal detailed in section 2, above, as to be included in one of the airspace contingency plans for the Kabul FIR.
- d) Discuss any relevant matters as appropriate.

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