International Civil Aviation Organization

The Special Coordination Meeting for the Bay of Bengal area (SCM/BOB) and The Sixteenth Meeting of the Bay of Bengal ATS Coordination Group (BBACG/16)

Bangkok, Thailand, 31 January – 4 February 2005

Agenda Item 2: Air Traffic Flow Management System

NEED FOR AIR TRAFFIC FLOW MANAGEMENT SYSTEM

(Presented by IATA)

SUMMARY

This paper identifies the causes of the traffic congestion for long haul flights from South East Asian airports to Western Europe over the Bay of Bengal during the evening rush hour and discusses the need for an Air Traffic Flow Management System.

1 INTRODUCTION

1.1 The Bay of Bengal airspace lies in between busy international airports in South East Asia such as Bangkok, Kuala Lumpur and Singapore, and Western Europe. West of the Bay of Bengal lies the Indian sub-continent with a number of international airports which are seeing high growth in air travel. Further west is Pakistan, which also has international airports where flights operate to Europe.

2 CAUSES OF THE CONGESTION IN THE BAY OF BENGAL AREA

2.1 Traffic bunching within a two-hour period

2.1.1 During the late evening peak lasting about 2 hours as many as 50 departures may be expected to depart from the three major airports in South East Asia - Bangkok, Kuala Lumpur and Singapore airports. Adding to this is the flow is the traffic out of India's Delhi and Mumbai airports, and Pakistan's Karachi, Islamabad and Lahore airports, with about 15 flights. All these aircraft are flight planned to depart nightly at a time enabling them to arrive at European airports in the early morning, after the curfew hours. Although these aircraft depart from different airports and are proceeding to several different airports in Western Europe, almost all of them have to funnel through routes in Kabul FIR within the same two-hour period. Hence the congestion.

2.2 Only three routes through Kabul FIR

2.2.1 Flights operating between airports in South East Asia and Western Europe mainly operate on G792, L750, A466 and N644 across Kabul FIR. The Himalayas to the north of India acts as a natural barrier and prevents flights from operating further north. The EMARSSH route structure envisaged 4 independent flows. Effectively however, there are only three routes as A466 and N644 are regarded as one single route for the purposes of air traffic separation.

2.3 Insufficient flight levels

2.3.1 RVSM was implemented on 27 Nov 03, which should have theoretically doubled the number of usable flight levels. However, as RVSM could not be implemented in Kabul FIR the only usable levels remained FL310 and FL350, i.e., there was no change. Long haul flights are unable to reach FL 390. FL 280 was withdrawn and was only recently reinstated to the levels available for L750, N644 and A466. West of Kabul FIR, RVSM implementation doubled the levels available for both westbound and eastbound flights. However, it has to be noted that while eastbound flights are able to operate on the higher of the band of levels, the westbound traffic are restricted by weight to operate at only FL280, 300, and FL320 while in the Bay of Bengal. Only a limited number of long haul flights can use FL 340 in the early stages of their flight..

2.3.2 Of the three westbound flight levels available, Fl 300 is reserved for flights on crossing tracks.

2.4 Preference for particular routes

2.4.1 The routes are not equal in length. L759/l750 had been the most-favoured route for westbound flights and is frequently the most congested and therefore sees the worst delays. Even with the extension of P628 to RK and thereafter to Kandahar, it is still longer than L759/L750 by about 50 nautical miles. As these 2 routes are almost parallel the upper winds affecting one route are likely to affect the other as well. All things being equal it was natural for flights to bunch on the shorter route. However, when the upper winds favour a more southerly track, the consequent spreading of flights usually result in a significant improvement in the delay figures.

2.4.2 It is clear that whether or not there would be a bunching of flights on any particular night was entirely left to chance, with each airline flight planning without any knowledge of the possibility of long delays on any particular route.

2.5 Ineffective ATC coordination procedure

2.5.1 There is in place a coordination procedure which attempts to maximize the slots available to reduce the departure delays, but this has not been really very effective as it tries to allocate slots when flights are ready to depart and not at the flight planning stage. Therefore there is no flexibility afforded to airlines to proceed on another route, without incurring a further delay in re-filing the flight plan and possibly refueling for the new route. Another limitation is that the coordination procedure has the objective of addressing slots for departures only from South East Asian airports. It does not address the departures out of Indian and Pakistani airports joining this flow midstream.

3 AIR TRAFFIC FLOW MANAGEMENT (ATFM) SYSTEM

3.1 Considering the amount of coordination required (the flights pass through about 9 FIRs and as many ACCs) it is felt that an automated system was the only way to achieve a proper slot allocation scheme acceptable to both airlines and ATC. The question is whether the slots over Kabul should be managed by the ATS units coordinating the flow among themselves, or through an airline regulated automated system such as the FAA Dynamic Oceanic Track System (DOTS).

3.2 A paper exercise using the DOTS was conducted on 16 April 2004 and preliminary results indicate that such a system could help to reduce some of the inefficiencies in the system and regulate the peak evening westbound flow more effectively.

3.3 As traffic increases in future, so will the need for an even more sophisticated ATFM system become more acute, to address not just the evening peak hour traffic flow between South East Asia

and Western Europe, but the traffic in all directions within the entire Indian sub-continent and the Bay of Bengal. While IATA recognizes a long- term need for a comprehensive ATFM system, the issue of bunching and departure delays during the evening peak hours is in urgent need of a solution and it is hoped that more headway can be made in this direction.

4 ACTION BY MEETING

4.1 The meeting is invited to note the urgent need to establish air traffic flow management using an automated system to regulate the flow of traffic across the Bay of Bengal during the evening peak hours.

…….