International Civil Aviation Organization

The Twentieth Meeting of the APANPIRG ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/20)

Singapore, 05 – 09 July 2010

Agenda Item 4: Review and progress the tasks assigned to the ATM/AIS/SAR/SG by APANPIRG

Action for an Effective ATM Contingency Plan for the Region

(Presented by Singapore)

SUMMARY

ICAO Annex 11 stipulates the need for States to publish their ATM Contingency Plan. The importance of this requirement is emphasised as one of the Action Items in the Task List of ATM/AIS/SAR Sub Group of APANPIRG classified as a high priority activity that should be expedited with a target date of completion in 2010. (Action Item 18/10 refers)

While a State could develop its Contingency Plan with an adjoining State, the whole process would be repeated by the adjoining State with its neighbouring States and so forth. As such, it will require a large number of bi-lateral meetings between the affected States and it could take a few years to harmonise the various individual State's contingency plan.

APANPIRG/19 agreed that it would be more efficient if contingency plan meetings involving many States were held under the ICAO umbrella. This will also allow for a harmonization of Contingency Plans where in the event that two of more contiguous Flight Information Regions need to activate their plans.

This paper proposes a way forward for States to collaborate under the ICAO umbrella to develop and harmonise their Contingency Plans to effectively serve as a regional contingency plan and at the same time meeting the ICAO Annex 11 requirements.

1. INTRODUCTION

1.1 At APANPIRG/19 held in Bangkok, Thailand on 1 – 5 September 2008, Singapore presented a working paper highlighting the need for States to implement State Contingency Plans in accordance with ICAO Annex 11 requirements. Development of State Contingency Plans would of necessity be a consultative process between the adjacent FIR authorities. Such a process would be iterative, requiring numerous multi-lateral meetings between States concerned. APANPIRG/19 agreed that it would be more efficient if States concerned in this region could take full advantage of ICAO's periodic ATS Coordination meetings to hold side meetings to plan / formalise State Contingency Plans amongst themselves.

1.2 Hence, at SEACG/16 held in Bangkok, Thailand on 11 – 15 May 2009, Singapore presented a paper calling for a regional effort to develop State Contingency Plans and to take the opportunity during the periodic ICAO ATS coordination meetings to do so. Again it was reiterated that such an approach would be more efficient and cost-effective as well as less time-consuming compared to each State undertaking its own travel arrangements / consultations with adjacent FIR authorities at various times. It was highlighted at SEACG/16 that the development of the multilateral Y2K contingency plan was an excellent example of States collaborating under the ICAO umbrella to address a scenario of significant degradation to air traffic services, systems and facilities.

1.3 At SEACG/17 held in Singapore on 24 – 27 May 2010, Singapore presented a paper highlighting the need for States to harmonise the development of their State Contingency Plans. This is to cater for an event where two or more contiguous FIRs need to activate their contingency plans at the same time. With the current situation where each State develops its own contingency plan without a regional coordinated effort, it could lead to a situation of disjointed contingency routes and mismatched flight level assignments when two or more States activated their contingency plans.

2. DISCUSSION

2.1 The ICAO model of a State ATM Contingency Plan based on the Indonesian National ATM Contingency Plans of Jakarta and Ujung Pandang FIRs serves as an excellent example for States to take guidance in developing their contingency plan. This sample plan has been made available by the ICAO Asia Pacific regional office since May 2007 on its website.

2.2 The general methodology and considerations for States to undertake in developing their contingency plan can be identified as follows;

(a) identifying the major international traffic flows to ensure minimal disruption when contingency plan is activated;

(b) determining the flight levels assignments on the contingency routes to ensure vertical separation and ease of managing the air traffic flows; and

(c) demarcating the segment of the contingency routes for apportioning to the adjacent air traffic service providers taking into account the air-ground, ground-ground communication as well as some form of surveillance capabilities.

2.3 Unlikely as it may seem, one cannot rule out the possibility that there could be situations that require two or more adjacent FIRs activating their State Contingency Plans at the same time. To cater for such a scenario, State Contingency Plans need to be harmonised across the region. This would require, for instance, designated contingency routes and assigned flight levels in one State's plan to match those in the adjacent States' plans. Given the transboundary nature of air transport, harmonisation of State Contingency Plans is crucial to minimise disruption to aircraft operations across FIRs during contingency situations, thus fulfilling ICAO Annex 11 requirements.

2.4 An example of a regional contingency plan developed through active collaboration between States can be seen in the North Atlantic (NAT) Region. Under the auspice of the North Atlantic Systems Planning Group (NAT SPG), European and North Atlantic (EUR/NAT) Office of ICAO published the first edition of the ATM Operational Contingency Plan for North Atlantic Region on 22 October 2009. The full contingency plan document (NAT Doc 006) can be found at the EUR/NAT Office website (http://www.paris.icao.int/documents_open/show_file.php?id=323)

2.5 The ATM Operational Contingency Plan for NAT Region is presented in two parts. Part 1 addresses contingency situations affecting a single ATC facility or one FIR. Part 2 addresses

contingency situations affecting multiple FIRs. This part of the plan considers events which are likely to affect more than one facility within the NAT region. In particular these include the contingency arrangements in place to deal with situations such as airspaces suffering contamination by volcanic ash.

2.6 States would also need to implement the following as part of their State Contingency Plans:

(a) Issuance of Aeronautical Information Publication (AIP) Supplements containing details on activation, promulgated contingency routes, the flight levels available and the supplementary communication facilities that are available on these routes (see Annex A for a sample AIP Supplement);

(b) Formalisation of the State Contingency Plans between adjacent States concerned (for example, through a Letter of Agreement);

(c) Documentation of Contingency Procedures / Manual to provide guidance for the State's agencies / personnel on activation and deactivation of the State Contingency Plans.

2.7 These measures, taken in both the regional front and by the individual States could lead towards an effective and robust ATM Contingency Plan that would serve the region well in various contingency scenarios. The success of this relies on not just the actions of individual States but through a collaborative effort at a regional level involving all the stakeholders.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

(a) Note the need, based on ICAO Annex 11, for all the States to develop and implement State Contingency Plans;

(b) Note the general methodology and considerations in developing an effective contingency plan, particularly the need to harmonise the contingency routes / procedures across FIRs;

(c) Note the NAT Region ATM Operational Contingency Plan as a model for a regional contingency plan;

(d) Note the associated requirements of AIP Supplement, Letter of Agreement and local procedures manual to ensure completeness in introducing the contingency plan;

(e) Discuss a way forward in developing ATM Contingency plan to both serve as an effective plan and meeting the ICAO Annex 11 requirements for States.

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DRAFT AIP SUPPLEMENT

INTERNATIONAL ATM CONTINGENCY ROUTES FOR [*FIR NAME*] FIR

1. Objectives

1.1 This publication contains the contains arrangements to ensure the continued safety of air navigation in the event of total disruption of Air Traffic Services (ATS) within the [*FIR NAME*] Flight Information Region (FIR) and is in accordance with the ICAO Annex 11.

1.2 In the event of total disruption of ATS within the [*FIR NAME*] FIR, contingency routes will be promulgated to accommodate the flow of international air traffic to ensure minimum disruption for aircraft transiting the [*FIR NAME*] FIR. These contingency routes are designed to maximize the use of existing ATS route structure, communications, navigation and surveillance services. To ensure continued safety, limited flight levels will be made available on these contingency routes.

1.3 In the absence of ATS, Flight Information Services will be provided on the contingency routes by the designated ATS Unit as specified in Para. 2.3

2. Air Traffic Management

2.1 Notification of Activation

2.1.1 In the event that ATS cannot be provided within the [*FIR NAME*] FIR, [*ACC NAME*] Area Control Centre (ACC) shall publish not less than 48 hours prior, if practicable, a NOTAM indicating the following:

a. Date and time of commencement of the Contingency Routes;
b. Information on the provisions made for alternate services;
c. ATS Contingency routes and the flight levels available;
d. Details of the availability of facilities and services including an expected date/time of restoration of services if available;
e. Procedures to be followed by pilots;
f. Any other details with respect to the disruption and actions being taken that aircraft operators may find useful.

2.1.2 In the event that [*ACC NAME*] ACC is unable to issue the corresponding NOTAM, the [*Designated Alternate*] will take action to issue the NOTAM of the contingency plan upon notification by [*ACC NAME*] ACC.

2.2 Provision of Services and Communication Facilites

2.2.1 On activation of the contingency routes, the following ATS Units shall be providing Flight Information Service on the portions of the [*FIR NAME*] FIR to allow international air traffic movements on the contingency routes. These designated ATS Units shall provide FIS on portions of contingency routes stipulated in para 2.3.

	Designated ATS Units	**Communication Facilities**		
		VHF	**HF**	**Others**
a)	*Name of ACC 1*			
b)	*Name of ACC 2*			
c)	*Name of ACC 3*			
d)	*Name of ACC 4*			
e)	*Name of ACC 5*			
f)	*Name of ACC n*			

2.3 Contingency Routes

2.3.1 The following contingency routes shall be established on notification of activation by NOTAM. These routes are based on pre-existing ATS routes with Significant Point to demarcate the need to establish contact with the designated ATSU Unit for FIS.

	Contingency Route	**Existing Route**	**Direction of flight**	**Significant Points**	**Designated ATS Units**
1	*CR1*	*Rte Desig. 1*	*Westbound*	*Sig. Pt 1*	*ACC 1*
				Sig. Pt 2	*ACC 2*
2	*CR2*	*Rte Desig. 1*	*Eastbound*	*Sig. Pt 1*	*ACC 3*
		Rte Desig. 2		*Sig. Pt 2*	*ACC 1*
3	*CR3*	*Rte Desig. 1*	*Northbound*	*Sig. Pt 1*	*ACC 4*
				Sig. Pt 2	*ACC 4*
		Rte Desig. 3		*Sig. Pt 3*	*ACC 4*
4	*CRn*	*Rte Desig. 1*	*Direction*	*Sig. Pt 1*	*ACC n*
		Rte Desig. 2		*Sig. Pt n*	*ACC n*

2.3.2 To ensure flight safety on the contingency route, there will be limited flight levels available for flights utilizing the contingency routes. The flight levels assigned for each contingency route are as follows;

	Contingency Route	**Direction of flight**	**Assigned Flight Levels**
1	*CR1*	*Westbound*	*FL360, FL400*
2	*CR2*	*Eastbound*	*FL350, FL390*
3	*CR3*	*Eastbound*	*FL310, FL350*
4	*CR4*	*Northbound*	*FL300, FL380*
5		*Southbound*	*FL330, FL410*
6	*CR5*	*Westbound*	*FL300, FL340*

3 Transition to Contingency Routes Activation

3.1 The transition period shall be defined as the time when the ability to provide ATS cease till the time when the contingency routes are activated by way of notification through NOTAM.

3.2 During times of uncertainty when impending closures of [*FIR NAME*] FIR seem possible, aircraft operators should be prepared for a possible change in routing while en-route. Familiarization of the alternate routes and contingency routes outlined in this publication, as well as those which may be promulgated by [*FIR NAME*] FIR via NOTAM is necessary.

3.3 In the event of a sudden airspace closure, [*ACC NAME*] ACC shall broadcast to all aircraft in [*FIR NAME*] FIR, that airspace is being closed and to stand by for any further instructions.

3.4 During the transition period, operators can expect communication congestions as such communications shall be kept to a necessary minimum. Unnecessary routing changes will not be issued and the other designated ATS Units will provide guidance as far as possible.

3.5 For flights approaching [*FIR NAME*] FIR during the transition period, flights shall plan to re-route around [*FIR NAME*] FIR or land at an appropriate airfield.

4 Procedures for Pilots and Operators

4.1 Flight planning requirements for the [*FIR NAME*] FIR are to be followed in respect to normal flight planning requirements contained in the [*NAME of State*] Aeronautical Information Publication (AIP) in [*AIP Section*].

4.2 All aircraft transiting through [*FIR NAME*] FIR shall strictly comply with the following:

a. Operate along or as close as possible to the centerline of the assigned contingency air traffic route.

b. Reach the flight level assigned by adjacent designated ATS Units for the transit of [*FIR NAME*] FIR at least ten (10) minutes before entering [*FIR NAME*] FIR.

c. Maintain the flight level and Mach number assigned by the last adjacent designated ATS Units while operating within [*FIR NAME*] FIR, unless an emergency situation or flight security reason exists.

d. Maintain a continuous listening watch on the communication frequency of the designated, transmit blind on emergency frequency 121.5 MHz and on pilots' air to air frequency 123.450 MHz position reports five (5) minutes before and overhead each compulsory reporting point established along the respective air traffic route.

e. Include in their last position report to the designated ATS Units the estimated time of arrival over the entry point of [*FIR NAME*] FIR and the estimated time and point at which they are to exit the [*FIR NAME*] FIR.

f. Whenever emergencies and/or flight safety reasons make it impossible to maintain the flight level assigned for the transit of [*FIR NAME*] FIR, climb or descend well to the right of the centreline of the air traffic route being flown but remaining within [*FIR NAME*] FIR and to inform immediately, by blind broadcast emergency frequency 121.5 MHz and on pilots' air to air frequency 123.450 MHz, all other aircraft likely to be affected by transmitting a relevant emergency level change message (comprising the aircraft call-sign, the aircraft position, the flight levels being left and crossed, etc.).

g. Contact the adjacent designated ATS Units as soon as possible and at least ten (10) minutes before the estimated time of arrival over the relevant exit point of [*FIR NAME*] FIR in order to obtain clearance for entering the adjacent FIR concerned.

h. Display navigation and anti-collision lights at all times during the transit of contingency airspace.

5 Resumption and Restoration of Services

5.1 As soon as ATS are restored in [*FIR NAME*] FIR, a NOTAM notifying the resumption of ATS will be published.

5.2 In the aim to ensure safe and orderly traffic movements at the onset of the resumption of service, operators can expect congestions and delays. As such additional flow control measures could be applied to regulate the flow of traffic to clear the backlog of air traffic that has been affected during the period when ATS was not available.