



*International Civil Aviation Organization*

**The Eleventh Meeting of the FANS Implementation Team for South-East Asia (FIT-SEA/11) and the Eighteenth Meeting of the South-East Asia ATM Coordination Group (SEACG/18)**

Bangkok, Thailand, 3 – 6 May 2011

**Agenda Item 6: Implementation of the CNS/ATM Systems in the Region**

**SEAMLESS ATM IMPLICATIONS**

(Presented by the Secretariat)

**SUMMARY**

This paper presents information regarding the Seamless ATM concept. There has been unprecedented interest in the future air traffic systems being developed to enable ‘Seamless ATM’ which was agreed at the 46<sup>th</sup> Conference of Directors General of Civil Aviation (DGCA/46, October 2009, Osaka), and how these may affect the Asia and Pacific (APAC) Regions.

This paper relates to –

**Strategic Objectives:**

- A: **Safety** – *Enhance global civil aviation safety*
- C: **Environmental Protection and Sustainable Development of Air Transport** – *Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

**Global Plan Initiatives:**

- GPI-1 Flexible use of airspace
- GPI-3 Harmonization of level systems
- GPI-4 Alignment of upper airspace classifications
- GPI-5 RNAV and RNP (Performance-based navigation)
- GPI-6 Air traffic flow management
- GPI-7 Dynamic and flexible ATS route management
- GPI-8 Collaborative airspace design and management
- GPI-17 Data link applications

**1. INTRODUCTION**

1.1 In the region, the 46<sup>th</sup> Conference of Directors General of Civil Aviation, Asia and Pacific Regions (DGCA/46, October 2009, Osaka) first addressed the “Seamless Sky” in its Kansai Statement which requested, *inter alia*, the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) to be a starting platform for the discussion on “Seamless ATM”.

1.2 As the first step toward the ‘Seamless Sky’, the 20<sup>th</sup> Meeting of the ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/20, June 2010) considered it important to extend knowledge about the ICAO Global ATM Operational Concept and the future ATM visions such as NextGen (United

States), SESAR (Europe) and CARATS (Japan). To achieve this objective, the Federal Aviation Administration (FAA) and Japan Civil Aviation Bureau (JCAB) proposed a forum on future air traffic systems in collaboration with ICAO Asia and Pacific Office. Since then, a number of related activities have been initiated that are relevant to the SEACG.

## 2. DISCUSSION

2.1 The DGCA/46 Conference noted that the Asia/Pacific airspace was not seamless from the perspective of air traffic, and given the rapid growth in air traffic, there was a need for seamless ATM operations for safe and efficient air transport in Asia and Pacific. For this, it was necessary for each State to plan its future air transport system, taking into consideration the overall vision for the region and the ATM modernization programmes being developed in the USA and Europe. In order to realise seamless ATM operations across Asia and Pacific, there will also be a need for coordination and harmonisation amongst the States.

2.2 In summarising the session, the Moderator made the following remarks:

*ICAO plays an important leading coordinator role in harmonizing ATM globally and in Asia and Pacific, with the Global ATM Operational Concept and Global Air Navigation Plan providing the framework for this.*

*With the cross-border and cross-regional nature of air traffic, international cooperation and harmonization are essential for the development of seamless ATM globally and in the Asia/Pacific region.*

*NextGen and SESAR provide useful lessons, especially on key elements, for the development of seamless ATM in Asia and Pacific.*

*One key element is providing a platform for discussing and implementing harmonised ATM standards, procedures and mechanisms for seamless, safe and efficient air transport operations in Asia and Pacific. The leadership of the Regional Office and the efforts of APANPIRG have progressed ATM harmonization in Asia and Pacific through the implementation of developed procedures and mature technologies for short and medium terms, according to the regional Air Navigation Plan. The platform to take seamless ATM in Asia and Pacific forward has to be further discussed, given the array of issues and options raised. APANPIRG could be used as a starting platform.*

2.3 The Conference reviewed a draft Joint Statement proposed by Japan. The Conference agreed and adopted the finalized Joint Statement as the Kansai Statement (**Attachment** to this paper).

### **APANPIRG/21**

2.4 The 21<sup>st</sup> meeting of APANPIRG (APANPIRG/21, September 2010) also discussed how to implement the Seamless ATM concept in the region, and adopted Conclusion 21/8 as follows:

#### **Conclusion 21/8 – ICAO Asia/Pacific Seamless ATM Workshop**

*That, ICAO be invited to organize the Asia and Pacific Seamless ATM Workshop to be held in early 2011 inviting the APANPIRG member States and other parties of interest in order to foster discussion and action for the Asia and Pacific States in the planning of the future air traffic management system, considering the overall vision for the region for seamless ATM.*

2.5 APANPIRG/21 also agreed to the proposed ad-hoc meeting arrangement and formulated Conclusion 21/12 as follows:

***Conclusion 21/12 – Convening of the Seamless ATM Ad-Hoc Meeting***

*That, while recognizing the seamless ATM needs to be addressed in a holistic manner, ICAO Regional Office be invited to organize a seamless ATM Ad Hoc working group meeting as soon as possible.*

2.6 As a result of these Conclusions, the Seamless ATM Symposium and Ad-hoc Meeting were organised in Tokyo, Japan for April 2011, but were postponed due to the tragedy in that nation. The Regional Office will advise when and where these meetings will be held in the near future.

2.7 The CANSO (Civil Air Navigation Services Organisation) Seamless Airspace Workgroup proposed the following definition of ‘seamless airspace’:

*Contiguous airspace that is technically and procedurally interoperable, universally safe, and in which all categories of airspace users transition between FIR, or other vertical or horizontal boundaries, without requiring a considered action to facilitate that transition and without any noticeable change in:*

- *Type or quality of service received*
- *Air navigation and communications performance standards*
- *Standard practices to be followed.*

2.8 The CANSO Seamless Airspace Workgroup considered the following terms as key to describe the general concept of Seamless ATM: standardised, harmonised, and interoperable. Thus a vision of a future Seamless ATM environment may be conceptualised as having:

- consistent and harmonised standards and operating practices; and
- using interoperable ATM and supporting systems.

2.9 In regard to the reorganization of APANPIRG contributory bodies, APANPIRG/21 agreed to establish the APANPIRG Contributory Bodies Structure Review Task Force (ABSRTF) and adopted the following Decision:

***Decision 21/57 - APANPIRG Contributory Bodies Structure Review Task Force***

That,

- a) APANPIRG Contributory Bodies Structure Review Task Force with members consisting of Sub-group chairpersons, vice-chairpersons and voluntary members nominated by States be established; and
- b) In coordination with ICAO Regional Office, the Task Force undertakes a review of the Terms of Reference and activities of the APANPIRG contributory bodies and proposes rationalization of their structures to APANPIRG/22 to meet the changing environment.

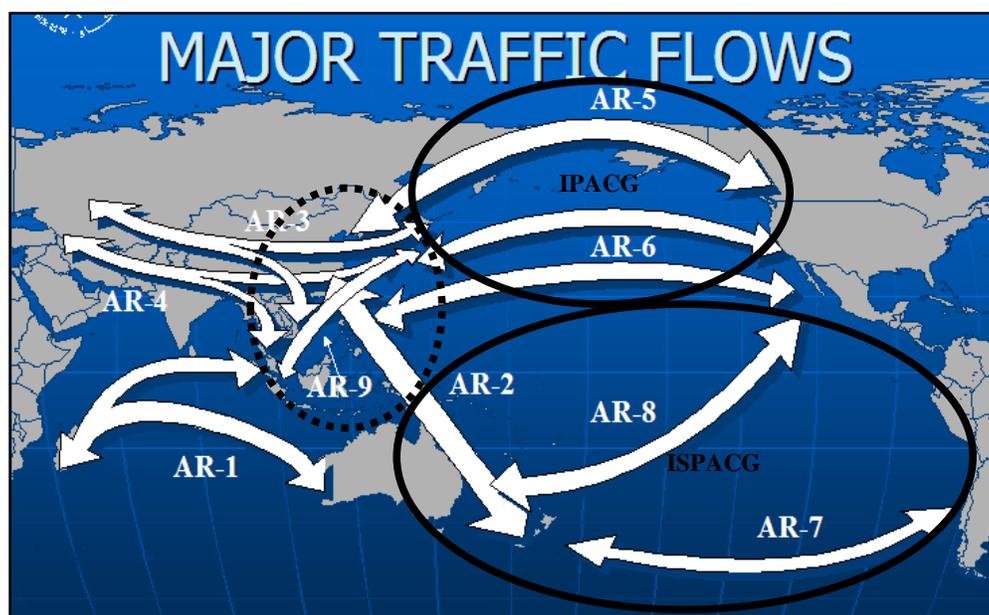
2.6 In this connection, the review of the bodies that contribute to APANPIRG must support the on-going development of Seamless ATM.

2.7 In the context of Seamless ATM, it is clear that optimal, harmonised systems and procedures cannot be achieved without appropriate coordination between:

- State ATS Authorities;
- Air Navigation Service Providers (ANSP);
- Communication Service Providers (CSP);
- Military authorities; and
- airspace users such as the International Air Transport Association (IATA).

2.8 The main Major Traffic Flows of relevance to the SEACG are illustrated in the figure below:

- AR-2 (East Asia – South Pacific, northern portion);
- AR-3 (Europe – East and Southeast Asia);
- AR-5 (East Asia – North America, western portion); and
- AR-9 (Southeast Asia – East Asia).



Major Traffic Flows

2.9 It is necessary to emphasise the importance of an integrated ATM Coordination Group, covering the geographical region generally described as Southeast Asia and East Asia<sup>1</sup>. To be effective, Seamless ATM must focus on Major Traffic Flows within the area generally within dashed ellipse in the figure above, not covered by the geographic scope of IPACG and ISPACG.

2.10 It is important for Seamless ATM to recognise that the Major Traffic Flows are not constrained by ICAO Regions and in the future, the need to work across trans-regional boundaries will be increasingly required. Such is already the case for the IPACG (Informal Pacific ATC Coordinating Group) and ISPACG (Informal South Pacific ATS Coordination Group), which coordinate with North American and South American Regions respectively.

<sup>1</sup> According to the United Nations Geoscheme for Asia, Eastern Asia includes China, Mongolia, Japan, DPR Korea and the Republic of Korea

2.11 There is no regular ATM coordination activity under APANPIRG that includes Democratic People's Republic of Korea, the Republic of Korea or Mongolia, except for the CMRI (China, Mongolia, Russia, IATA) meeting, which has traditionally dealt with cross-polar routes. Therefore, it is important that DPR of Korea, the Republic of Korea and Mongolia are included in an ATM coordination group to ensure effective coordination and to promote seamless services between the areas concerned. This does not have to be a single ATM coordination group, as the Southeast Asian sub-region and East Asian subregion may be considered separate. However, it should be noted that the BBACG has recommended to APANPIRG that a single, cohesive group<sup>2</sup> be formed that includes all Indian Ocean, South Asian and trans-regional Major Traffic Flows, in accordance with Seamless ATM.

2.12 ICAO's role is to facilitate the effectiveness of ATM coordination, provide advice and information on the Standards and Recommended Practices (SARPs), and ultimately to develop new SARPs that support this changing environment. In providing support to Seamless ATM coordination efforts, the limited resources of the ICAO Regional Office should be considered, as is the need for States to take prime responsibility for bilateral and multilateral ATM coordination themselves wherever possible in terms of providing administration support for coordination meetings.

### 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the content of this paper; and
- b) note the forthcoming Seamless ATM Symposium and ABSRTF.

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<sup>2</sup> Suggested names of the revised BBACG body are: South Asia – SAACG, or Indian Ocean IOACG, or South Asia Indian Ocean ATM Coordination Group – SAIOACG

**46TH CONFERENCE OF DIRECTORS GENERAL OF CIVIL AVIATION,  
ASIA AND PACIFIC REGIONS  
KANSAI, JAPAN, 12-16 OCTOBER, 2009**

*The Directors General of Civil Aviation (DGCA) of the Asia and Pacific Regions met for the 46th DGCA Conference in Japan, 12-16 October, 2009. Recalling that the 45th Conference had endorsed the Theme Topic for the 46th DGCA Conference as “Seamless Sky: Bringing Together the Asia/Pacific Regions,” Directors General of the Region held a productive discussion focusing on three aspects of the “Seamless Sky,” namely Air Traffic Management (ATM), Air Cargo Security, and Aviation Safety, and agreed to issue this Kansai Statement.*

**KANSAI STATEMENT**

1. We recognized that as civil aviation develops and globalization progresses, harmonization in civil aviation systems is becoming critically important in the Asia and Pacific Region, which has been characterized by the diversities of the member States. What people expect from harmonization in civil aviation is that aircraft operators will become capable of seamlessly flying between regions, that the whole of the network will be secured at the agreed level, and that transparent and interoperable standards will be set among States and regions. In this regard, “Seamless Sky” is particularly important in the areas of air traffic management, aviation security and aviation safety.
2. Regarding Air Traffic Management (ATM), we recognized that the ICAO has been leading the development and implementation of the Global Air Traffic Management system with the implementation target of 2025. The Global Air Traffic Management system will be based on the components described in the Global ATM Operational Concept. We also recognized that the United States and Europe have been developing their future air traffic modernization programmes. Taking such global trends of future ATM system into consideration, we recognized the necessity of planning the future ATM system for the Asia and Pacific Region by the active collaboration and participation of the whole of the Region. In this regard, we agreed that APANPIRG be the starting platform to discuss and plan the future ATM system of the Asia and Pacific Region including targets and a time schedule.
3. Regarding aviation security, we recognized the significance of enhancing air cargo security. Such efforts will enable member States to protect the flow of air cargo, raise security standards and facilitate international trade in the Asia and Pacific Region. To achieve these desired outcomes effectively, member States are encouraged to collaborate with one another and with ICAO towards developing internationally harmonized measures and processes in air cargo security. We agreed that the further sharing of information and best practices should be promoted, and to consider including provisions on air cargo security into Annex 17, taking into account the need to protect the entire cargo supply chain.
4. Regarding the aviation safety, we acknowledged the ICAO’s leadership in the improvement of aviation safety. We recognized the importance of the member States’ role in ensuring that their air operators establish and maintain the highest standards in safety through the proper implementation of Safety Management System as envisaged under the State Safety Programme. In addition, we recognized the importance of the safety monitoring activities regarding foreign aircraft by the member States in the Region. We agreed to further enhance the cooperation in these efforts and activities in the Region in a harmonized manner.
5. We are determined to realize the Seamless Sky in the Asia and Pacific Region from this conference onwards. We agreed to make efforts to move forward toward the harmonized aviation in the Asia Pacific Region in cooperation with all the member States and the ICAO Asia Pacific Regional Office.