

**54th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Ulaanbaatar, Mongolia
07 — 11 August 2017*

**AGENDA ITEM 3: AVIATION SAFETY AND
AIR NAVIGATION**

**PAKISTAN'S EFFORTS TO ENHANCE THE SAFETY AND
EFFICIENCY OF AIR NAVIGATION SYSTEM TO SUPPORT
REGIONAL AIR TRAFFIC FLOW**

(Presented by Pakistan)

INFORMATION PAPER

SUMMARY

Air Navigation safety is being challenged by continuously increasing air traffic and capacity limitations and increased military requirements. Route connections with adjacent FIRs and compatibility problem between the air navigation services of neighbouring States are also a main contributing factor.

In order to enhance safety and efficiency of air navigation system, it is imperative to adopt a proactive approach through improved operational procedures using technological advancements. The contingency planning is also an important aspect to minimize the impact of unusual disruption in the ATM system.

This paper presents efforts being made by Pakistan for enhancing safety and efficiency of air navigation system to support Regional Air Traffic Flow through its airspace.

PAKISTAN'S EFFORTS TO ENHANCE THE SAFETY AND EFFICIENCY OF AIR NAVIGATION SYSTEM TO SUPPORT REGIONAL AIR TRAFFIC FLOW

1. INTRODUCTION

1.1 The APAC Region is facing an unprecedented growth and the projected increase in air traffic is impacting on airspace congestion and safety. The air navigation safety and efficiency can be managed by use of reliable modern CNS technologies and PBN applications. This important function also requires ATM Coordination amongst adjacent States / FIRs besides internal coordination between the national stakeholders including military authorities. Airspace users need to work together to ensure safe and efficient use of airspace at all times. The States need to remain engaged on bilateral coordination / discussion and involve their ANSPs to continue support their respective neighbouring FIR's to address issues threatening aviation safety. In this regard PCAA has initiated numerous measures which are elaborated in subsequent paragraphs.

2. INFORMATION

Safety Oversight Function of Air Navigation Services / Facilities

2.1 Pakistan is aware of the obligation to ensure & improve aviation safety through the effective implementation Safety oversight function by applying Continuous Monitoring Approach (CMA). In this regard, Pakistan has established Directorate of Airspace & Aerodrome Regulations (DAAR) in 2009 to fulfil the requirements. This Directorate has established a defined mechanism to conduct safety oversight functions of ANS, CNS, APS facilities including aerodrome certifications and implementation of National Airfield Clearance Policy (NACP) for obstacles clearance criteria. Using the guidance from Universal Safety Oversight Audit Programme (USOAP) an effective tool in the form of Protocol Questioner (PQs) Checklist is developed and Continuous Monitoring Approach (CMA) is implemented.

Air Traffic Management

2.2 The Air Traffic Management (ATM) which is an essential segment of aviation, contributes significantly in safety and efficiency of air navigation, including handling of air traffic during any natural / unforeseeable calamities. The contingency plans also play vital role to combat abnormal situations and minimize the undesired effects upon flight safety.

2.3 Pakistan connects two ICAO regions i.e. APAC & MID Regions and recognizes its responsibility to support regional air traffic flows through its airspace. Accordingly Pakistan is in the process of upgradation of its surveillance and communication systems for improved safety and efficiency of aircraft operation. The implementation of Performance Based Navigation in accordance with ICAO Regional Plan / ASBU concept is a priority to enhance safety in operations.

2.4 The aviation today has more challenging and need to work together to ensure the long term sustainability of aviation industry. There is a need for regulators, service providers especially ANSPs & airlines operators and other industry stakeholders to align to respective responsibilities and obligations to ensure a more efficient operating environment. In this regard ICAO is playing an important role to serve as a global forum for member States and major aviation stakeholders to cooperate in finding solutions to the pressing problems and reaching agreement on SARPs for worldwide implementation and achieve a harmonized global aviation system. This global collaborative process would obviously make an extremely safe and reliable air transport system.

Aeronautical Information Management

2.5 Aeronautical Information Service is a core element enabling the safety and efficiency of Air Navigation Services. The delivery of safe Air Navigation services around the globe is more dependent on the reliable and timely exchange of information between the Air traffic management

systems at both national and international levels. Its main function is to ensure the flow of aeronautical information / data necessary for safety, regularity, economy and efficiency of international air navigation. The importance of accurate aeronautical information has enhanced significantly with the implementation of Performance Based Navigation (PBN), Airborne Computer-Based Navigation Systems and Data Link Systems.

2.6 Pakistan has acquired Aeronautical Information Management (AIM) System to meet the Standards and Recommended Practices of ICAO Annex-4 and Annex-15. The Static Data of Aeronautical Information Services is migrated to Aeronautical Information Management System in a manner that will ensure the availability of aeronautical information to all aviation stakeholder i.e. ANSP's, Airlines, Training Simulators / Institutes, etc., in a globally interoperable and fully digital environment using AIXM 5.1 platform for digital database, which provides basis for the interoperability of aeronautical data amongst different users.

2.7 Pakistan CAA is ISO 9001 certified and the Aeronautical Information Management System of Pakistan CAA is compliant with the requirement of ISO 9001:2008 (Quality Management System).

Application of PBN / RNAV

2.8 Challenges for ANSPs due to airspace limitations and CNS infrastructure need to collaborate and integrate plans to match and balance the region's requirements. Pakistan has also witnessed tremendous growth in traffic overflying its airspace. The expected future air traffic growth is also more than 6% per annum. In order to enhance the safety / efficiency and increase airspace capacity, Pakistan has developed an improved airspace concept based on PBN applications. Considering PBN as highest priority of aviation industry in the Global Air Navigation Plan and its significant role in ICAO Aviation System Block Upgrade (ASBU), Pakistan has shown good progress on its implementation and about 92.5 % of RNAV APCH procedures have been implemented. Similarly more than 80% of the international ATS routes have been transformed in RNAV routes to get the safety and efficiency benefits.

Ground Equipment Mandate

2.9 Pakistan Civil Aviation Authority is striving hard to meet ICAO standard of safety and reliability of surveillance system. PCAA has therefore endeavoured to upgrade its existing infrastructure of Radar network. The objective of the project revolves around the obligation of PCAA to ensure availability of adequate Communication, Navigation and Surveillance (CNS) infrastructure to facilitate safe and secure aircraft operations in Pakistan Airspace. Accordingly PCAA has operation of the latest ATM System and other CNS equipment /systems as per detail appended below.

- i. Latest Air Traffic Management System (ATM) at ACC JIAP Karachi and Lahore & New IIAP Islamabad
- ii. Upgraded Voice Communication & Control System (VCCS) at ACC of JIAP and AIIAP Lahore
- iii. Primary and Mono pulse secondary Radars (PSR &MSSR Mode S) at Karachi, Lahore and New IIAP Islamabad
- iv. Installation of MSSR Mode S at Lakpass, Pasni & Rojhan to strengthen safety of Aircraft on routes over flying Pakistan Airspace.
- v. Augmentation of EVHF Coverage through provision of latest EVHF equipment and addition of EVHF communication stations.
- vi. Provision of ADS-B and Managed services CPDLC, ADS-C, DVOLMET, DATIS by the end of 2018 .These data links will manage services in compliance

to the ICAO requirement for safe ATC provisions which would reduce the congestion over voice channels, besides providing back-up to the surveillance/communication facilities for Aircraft operation within Pakistan Airspace.

2.10 Though the successful deployment of CPDLC and other managed services in our domestic Airspace involves collaboration between many stakeholders, such as on boards Aircraft equipment and Airlines operator, however, the above stated facilities would certainly enable Pakistan to implement surveillance based separation standards and enhance airspace safety and capacity by almost 100%.

2.11 Pakistan CAA has improved its Aerodrome facilities by upgrading the ILS at Allama Iqbal International Airport (AIIAP) Lahore from CAT-II to CAT- III and has installed a new ILS CAT-III at New Islamabad International Airport (IIAP) along with Surface Movement Radars at both Lahore and Islamabad Airports.

ATM Contingency Plan

2.12 Pakistan had developed ATM Contingency Plans for Karachi and Lahore FIRs in 2011 which contain arrangements in accordance with ICAO Annex-11 Chapter-2 to ensure continued safety of air navigation in the event of partial or total disruption and / or degradation in air navigation services system. The plans have recently been updated based on the outcomes of Regional ATM Contingency Plan Task Force/5 (RACP/TF/5). The effects of contingencies may vary, however utmost efforts will be made to support international flight operations.

2.13 Role of adjacent States / FIRs for successful contingency operation is very vital. It is therefore imperative to exchange the contingency plan with adjacent States / FIRs for integration with their plans. Accordingly, Pakistan's ATM Contingency Plans are available on PCAA website for information of all concerned including neighbouring States for their information.

2.14 Pakistan is fully committed and assures to take all necessary actions for safety, regularity and efficiency of aircraft operation within Pakistan airspace in accordance with regional air navigation plan.

2.15 As Air navigation services are critical for safe and efficient airline operations, Pakistan has taken numerous measures to extend the required services all along its airspace to all flights landing or overflying in its FIRs. In harmony with the global trends and advancements, the systems are progressively being upgraded, while placing Safety in Aviation as the prime objective.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this paper.

— END —