



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY FIFTH MEETING OF THE
ASIA/PACIFIC AIR NAVIGATION PLANNING AND
IMPLEMENTATION REGIONAL GROUP (APANPIRG/25)**

Kuala Lumpur, Malaysia, 8 – 11 September 2014

Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation
3.2: ATM
SIMULTANEOUS TAKE-OFF AND GO-AROUND – SAFETY CONCERNS

(Presented by India)

SUMMARY

Air Navigation Services Providers (ANSPs) and Airport Operators are implementing various measures / procedures to optimize aircraft operations to cope with growing traffic. Some of the measures include reducing inter-arrival spacing, applying optimal speed -control, reducing runway occupancy time & reducing response time of flight crew.

With reduced inter-arrival spacing, there could be occurrences when departing aircraft delays its take-off roll and at the same time arriving aircraft goes around near runway threshold, resulting in unsafe situations.

The paper highlights the initiatives taken by AAI and the need for ICAO to consider developing standardized guidelines to prevent/resolve such potential traffic conflicts for ensuring safety of aircraft operations.

Strategic Objectives:

- A: **Safety** – Enhance global civil aviation safety
- B: **Air Navigation Capacity and Efficiency**—Increase the capacity and improve the efficiency of the global aviation system
- E: **Environmental Protection** — minimize the adverse environment effects of civil aviation activities.

1. INTRODUCTION

1.1 As the air traffic is growing at an exponential rate, major airports are facing challenges posed by capacity constraints. ANSPs and Airport Operators are taking initiatives to enhance the airport capacity without compromising safety through infrastructural up gradation wherever practicable.

1.2 Apart from airport & airspace infrastructure, runway capacity depends on controllers & pilots efficiency, runway conditions, environmental factors including wild-life management, prevailing weather conditions, ATM automation tools & surveillance systems aiding controllers. The runway capacity can be considerably enhanced by improving the airport infrastructure, ANS infrastructure, pilot-controller CDM and better wild-life control.

1.3 In addition, Air Navigation Service Providers (ANSPs) and Airport Operators are implementing measures/ procedures to cater for enhanced aircraft movements on existing runways. Some of the measures include reducing inter-arrival spacing, applying optimal speed control and reducing Runway Occupancy Time (ROT).

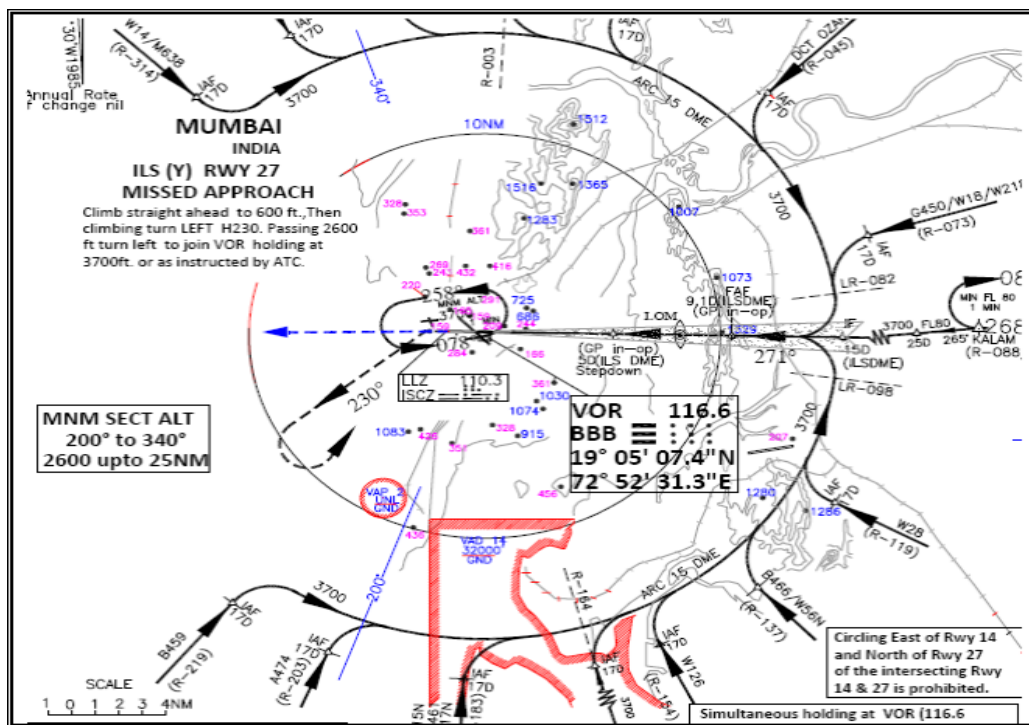
1.4 While implementing reduced inter-arrival spacing in line with ICAO provisions, judgmental errors on the part of controllers or pilots may arise. This may lead to situations wherein any delayed departure and go-around by aircraft before crossing runway threshold will result in both the aircraft coming in very close proximity with possible loss of required safety margin. Only pilot's expertise and experience can provide a degree of safety margin in such situations.

It is also possible that during such time-critical and panic situations the Controller's instructions and pilot's decision may be conflicting with each other leading to hazardous consequences.

1.5 Hence there is an immediate need for implementing standard procedures for ensuring that inherent safety margin exists in such situations without the need for controller's intervention.

2. DISCUSSION

2.1 India with its fast-increasing air traffic is also facing capacity challenges in many of its airports with high density operations. With a view to reducing the probability of close encounters between departing and going-around aircraft, India has implemented a procedure at Mumbai Airport in which departing aircraft is required to fly on runway heading till a specified distance (5.5 NM) and arriving aircraft executing missed approach is required to carry out a turning missed approach at specified altitude (600Ft), thereby ensuring that both the aircraft fly on non-conflicting paths. The turning missed approach procedure has been designed in compliance with Doc 8168 and implemented at Mumbai airport. Necessary Safety Assessment has also been conducted prior to implementation of the procedure.



The feedback from pilots and controllers indicates that the procedure is adequate to prevent conflicting situations of departing and going around aircraft coming in close proximity.

2.2 However turning missed approach may not be possible at all airports. There may be instances where terrain/obstructions do not permit such turning missed approach. Similarly, turning missed approach from a runway in a multiple-runway configuration may conflict with traffic on adjacent runways at an airport.

2.2 In an another initiative, to reduce judgmental error on the part of controller and enhancing runway capacity, A-SMGCS derived information of Time To Touchdown (TTT), which factors in tail/head wind components and differential aircraft speed, is being used at Mumbai for assessing optimal spacing and predictability for successful landing or otherwise.

2.3 While such measures have been found to be very useful in preventing incidents of departing and going around aircraft coming in close and dangerous proximity, there is a need for developing standard guidelines to resolve such conflicting situations.

2.4 A possible solution to address the close encounters between going-around and departing aircraft is suggested as below.

Documentary provisions do permit the arriving aircraft to continue till runway Threshold anticipating that the departing aircraft would cross the end of the runway before the arrival crosses the threshold .But in an occasional case where the aircraft takes off after a delayed roll-out and the arriving aircraft approaches runway threshold and then initiates go-around, an unsafe situation is inevitable.. Specifying a distance from runway threshold at which pilots must judge and initiate missed approach could be an option to prevent unsafe occurrences in such cases. Even if the aircraft delays its departure and the arriving aircraft goes around at or before such specified point, an in-built safe separation between the departing aircraft and the going around aircraft will exist.

More such options could be explored with the objective of ensuring that an element of safety is inherent in critical cases of simultaneous go- around near Threshold and a delayed departure.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to note the initiatives taken by Airports Authority of India.

3.2 States may consider taking similar steps to augment runway capacity with required levels of safety,

3.3 ICAO is invited to consider developing standard guidelines to deal with situations resulting in close encounters between aircraft going around and an aircraft taking off.