International Civil Aviation Organization

Sixth Meeting of the Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG/6)

Bangkok, Thailand, 2 to 5 April 2024

Agenda Item 4: Runway Safety and GRF Implementation

GREATER ROLE OF RUNWAY SAFETY TEAM – GROUND OPERATIONS SAFETY

(Presented by India)

SUMMARY

This paper discusses about the requirement of greater role for the Runway Safety Teams in complex airports in order to support safety of ground operations. Further, the formulation, methodology and conduct of Runway Safety Team meetings at Kempegowda International Airport Bengaluru are presented along with some of the major achievements of runway safety team in the past few years.

1. INTRODUCTION

1.1 Conventionally, the Runway Safety Team considers various aspects regarding runway incursion and other items which are at the immediate vicinity of runway such as pavement, sign, lights etc. However, in a complex airport, where multiple runways, taxiways with varied types of operations are undertaken, the role of Runway Safety Team should consider other aspects of ground safety such as potential hotspots on various parts of movement area including aircraft stand taxi lanes, wrong turns by pilots and vehicle operators, adequacy of progressive ATC instructions, level of A-SMGCS, requirement of stop bar on taxiways other than runway entries, positioning of no entry bars etc. Investigations of runway incursions have revealed that the stress level of pilots, controllers and vehicle operators during ground manoeuvring has contributed to the runway incursion. Therefore, identifying potential stress points in ground manoeuvring and providing adequate mitigation measures are imperative to enhance operational safety at complex airports with low visibility operations and thereby reducing the chances of runway incursion.

2. DISCUSSION

Conduct of Runway Safety Team Meetings

2.1 Kempegowda International Airport Bengaluru is a Code F CAT III airport with two runways, two terminals, 42 taxiways and 09 aircraft stand taxi lanes connecting to over 166 aircraft parking stands located in four different aprons. The airport is fortunate to have a very robust Runway Safety Team and conducts the meeting every quarter unless the frequency is reduced due to any urgent agenda. The Runway Safety Team consists of members from Regulator (Aerodrome, Air Safety & Flight Standards), Airlines (Pilots, ATM & Safety Teams), ATC and Airport Operator (Operations, Safety, Maintenance, Bird Hazard Management, AOCC, ARFF etc).

2.2 A well in advance notification regarding the date, at least 3 weeks before the meeting, allows the stakeholders to assign members and to incorporate their agenda points. At KIAB, the meeting precedes with a runway visit towards updating the members with the progress of the agenda points of previous meetings and introducing to the fresh agenda points. Such visits are always appreciated, particularly by the external members, as a different perspective of looking at various activities in the maneuvering area is developed. Predominantly these visits are coincided with runway maintenance slots as this helps the pilot community to understand various aspects of maintenance, such as runway surface repair, painting removal & marking, surface friction testing & rubber removal, AGL maintenance & PAPI ground calibration and strip maintenance & grass management. Simultaneously, the members from ATC and Airport Operator understand the perspective of pilots with regard to markings, signs and lights while looking out of the cockpit. This procedure helps promoting synergy between crucial stakeholders.

2.3 The meeting revolves around the objectives of RST, which are as follows:

- To improve runway safety data collection, analysis and dissemination as required in the SMS.
- To check that signages and markings are compliant with Civil Aviation Requirements and visible to pilots and drivers.
- To develop initiatives for improving the standards of communication.
- To identify potential new technologies that may reduce the possibility of runway incursion.
- To ensure that procedures are compliant with Aircraft Rules, Civil Aviation requirements and other guidelines issued by DGCA from time to time.
- To propagate local awareness by developing and distributing runway safety education and training material to Air Traffic controllers, pilots, personnel driving vehicles on the airside and other personnel working at aerodrome.

2.4 During the meeting, following fixed agenda items are discussed along with other important items.

2.4.1 Instances of Runway / Taxiway Incursions,

2.4.2 Critical incidents involving aircraft safety,

2.4.3 Instances of FOD on maneuvering area & action taken,

2.4.4 Bird Aircraft Strike Hazard Management

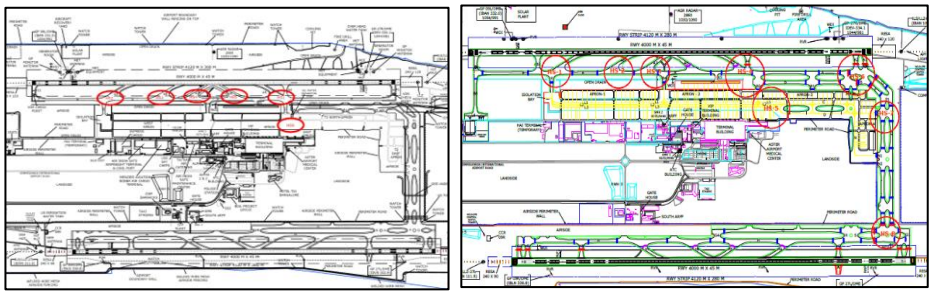
- Bird movement trend & Potential hazardous species
- Bird warning period
- Bird/Wildlife strike data & Impacts on aircraft operations
- Problem species of current season & mitigating actions
- Support from airlines

2.4.5 Any regulatory updates.

<u>Achievements of Runway Safety Team at KIAB</u>

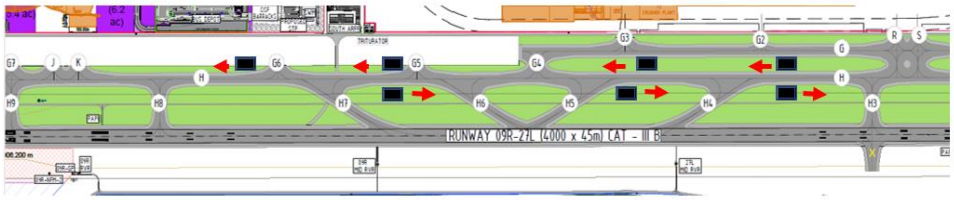
2.5 Even though there were numerous occasions where Runway Safety Team has supported the airport operator to have a safe and efficient aircraft operation, following are some of the most critical items:

2.5.1 Re-designing the hotspots – With the growth of one runway/one terminal operations to two runways/two terminals at BLR, the requirement of assessing and re-defining the hotspots also become imperative. The matter was brought in the RST and each of the existing hotspots was reviewed in terms of preferrable taxi routes, availability of infrastructure such as Stop Bar, No Entry Bar etc and the new hotspots were defined.

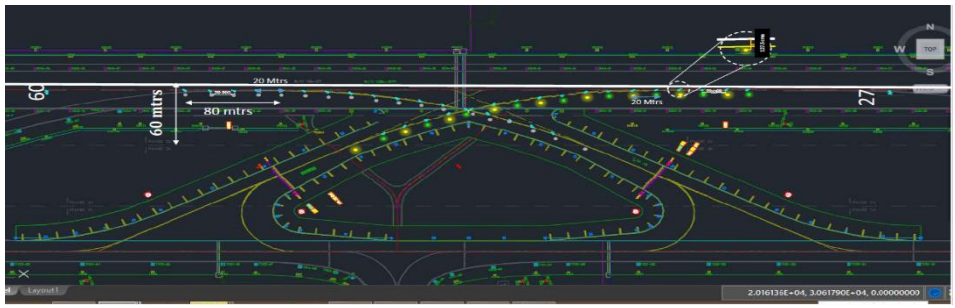


Before After

2.5.2 Provision of additional location signs – Taxiway H, parallel taxiway to runway 09R/27L is 4000m long and there was no location sign was available for the centre portion of the taxiway of approximately 2000m long. Even though, the compliance requirements were never compromised, RST members observed that the absence of any sign to indicate the location may create uncertainty in the minds while taxiing. There were 07 new location signs added.



2.5.3 Mitigating Sea-of-Blue Effect – In order to enhance and reduce the runway occupancy time (ROT), Runway 09L/27R at KIAB was added with two Rapid Exit Taxiways (RETs), viz., RET A6 for Rwy 09L and RET A7 for Rwy 27R. The design was planned in such a way that both the RETs were meeting the runway almost at the same point, leading to wider mouth. After commissioning the new RETs, the wider mouth with converging taxiway edge lights have caused Sea-of-blue effect, greater pilot confusion and missing or wrong turn of aircraft. The matter was considered by the RST team and suggested providing Raid Exit Taxiway Indicator Lights and Taxiway Centre Lights. Both the suggestions were implemented, and the adverse impacts were negated.



2.5.4 Promotional material for Ground Safety – KIAB has a unique set up of three lane aircraft stand taxi lane system for its aprons 1 & 2 and the three-lane system further merges with a two-lane system of aprons 3 & 4. The three-lane taxi lane system is developed in such a way that the outer lanes are dedicated for Code C and below and centre line is dedicated for Code D and above. Usage of such a system needs to have complete awareness by all the pilots operating at BLR to ensure aircraft ground safety. Towards achieving this, a audio-video module was created and uploaded in YouTube https://youtu.be/HsVNqDt2ZlM The module covers following critical aspects of BLR.

- Aerodrome Layout & Facilities
- Multiple Aircraft Ramp System
- Three Lane & Two-Lane Aircraft Stand Taxi Lane System
- Integration between Three Lane & Two-Lane Systems
- Markings, signs & lights supporting Three Lane Systems
- Procedures for lane changes & push back restrictions.
- Jet Blast protection requirements.
- Prohibition in reversing aircraft & 180 degree turn on apron.

3. CONCLUSION

3.1 Additionally, engaging with the RST members on various stages of runway construction activities has helped in identifying crucial hazards such as causing pilot confusion due to black topping of new runway etc. Even though most of the issues were resolved, there are issues such as ghost obstacle resulting in payload restriction, holding away from runway holding position leading in reduced separation for aircraft taxiing behind etc., which are ongoing.

3.2 While there are challenges of not having permanent pilot members for the RST, which can lead to lack in continuity, it is imperative to look at the RST in a wider perspective. It is time to involve the RST members from the customary aspects of runway incursion to aspects of ground safety in movement area, safety during airport expansions and change in procedures. Continuous and fruitful engagement with the RST members will definitely synergize the perspectives of pilots, controllers &airport operators and will ensure safe and efficient airport operations.

4. ACTION BY THE MEETING

4.1 The meeting is invited to note the information contained in this paper.

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