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*International Civil Aviation Organization*The Seventh Meeting of the Asia/Pacific
Aerodrome Assistance Working Group (AP-AA/WG/7)*Bangkok, Thailand, 27 to 30 May 2025***Agenda Item 3: Aerodrome Certification and Safety Management System****▪ Indicators and Examples of Good Safety Culture in Aerodrome Operations****BENCHMARKING SAFETY CULTURE IN GROUND HANDLING**

(Presented by India)

SUMMARY

This paper examines the structured methodologies implemented at Kempegowda International Airport Bengaluru (KIAB) to reinforce safety collaboration between Aerodrome Operator and GHSPs. It further explores Safety performance indicators (SPIs) and safety performance targets (SPTs) that drive continuous improvements in ground handling operations. By integrating regulatory frameworks, technology-driven monitoring, and stakeholder engagement, aerodrome safety can be significantly enhanced, reducing risks and ensuring operational excellence.

1. INTRODUCTION

1.1 The complex nature of airside operations, including aircraft movement, Ground Support Equipment (GSE) handling, and personnel management, necessitates a structured approach towards ensuring a high level of safety. This can be achieved by ensuring safety collaboration and seamless coordination between aerodrome operators and Ground Handling Service Providers (GHSPs). The integration of Safety Management System (SMS) between stakeholders is crucial to identify & mitigate risks and to foster a proactive safety culture. At **Kempegowda International Airport Bangalore (KIAB)**, enhancing safety collaboration is a strategic priority. A systematic approach has been developed to improve safety outcomes through:

- **Safety Performance Monitoring**, leveraging real-time data tracking and structured inspections to proactively mitigate risks.
- **GSE Maintenance and Compliance**, ensuring that Ground Support Equipment meets stringent safety and operational standards.
- **Workforce Competency Development**, incorporating targeted training programs and certification requirements.
- **Addressing Procedural Gaps**, identifying and rectifying inconsistencies in safety-critical airside activities.
- **Community-Based Safety Engagement**, fostering a culture of shared responsibility through collaborative hazard identification and reporting initiatives.

2. DISCUSSION

Enhancing Safety Collaboration Between Aerodrome Operator and Ground Handlers

2.1 ICAO DOC 10121, Edition-1 (2019) details a need for Safety Management System interface between Aerodrome operator and GHSPs. This focuses on key elements such as the need for GHSP Licensing, effective communication of aerodrome safety regulations, upkeep of vehicles and equipment at airside, rules for driving and safety of personnel, FOD management and coordination during emergency planning.

2.2 DGCA India, implies the same, through Civil Aviation Requirement (CAR) on “Requirements for issue of Safety Clearance to GHSP-2024”. In which, it elaborates the critical requirements for issuance of Safety Clearance to GHSP and essential provisions that need to be included in a Ground Handling Services manual. This also specifies conditions for personnel training, establishing a safety management system, incident/accident reporting and emergency response system.

2.3 At KIAB, the enhancement of safety collaboration between Aerodrome Operator and Ground Handling Service Provider is achieved systematically. This includes,

- Safety Performance monitoring
- GSE Maintenance and Compliance
- GHSP Workforce Competency Development
- Addressing Procedural Gaps
- Community-Based Safety Engagement

2.3.1 *Safety Performance Monitoring*

An advanced approach to safety performance monitoring of Ground Handling Agents (GHAs) at KIAB involves real-time data tracking, regular audits, and performance analytics to ensure compliance with safety standards. By implementing a tailored key safety performance indicator (SPIs), conducting structured inspections, and fostering a proactive incident reporting culture, the airport operator identifies hazards proactively and drives continuous improvement. Integrating digital monitoring tools and feedback-driven training further enhances safety measures, ensuring efficient and risk-free ground handling operations.

Creating tailored Safety Performance Indicators (SPIs) and Safety Performance Targets (SPTs) for Ground Handling Agencies (GHAs) ensures that safety monitoring aligns with the specific risks, operational complexities, and regulatory requirements.

As part of National Aviation Safety Plan 2024 – 2028, DGCA India the Goal 1 is linked to the eight National High-Risk Categories (N-HRCs) of occurrences, out of one such N-HRC is “Ramp Safety”. Further the NASP has defined SPI and SPT to reduce Ramp Safety Incidents.

To achieve the safety objective and to evaluate the effectiveness of the safety action plan, the following Safety Performance Indicators (SPIs) will be monitored by the state regulator proactively

Table 2.21 –SP6 SPIs

SPI	Metrics	Stakeholders
2.7.1	Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements	CAO, CHO, AERD, GHSP
2.7.2	Number of ramp collisions involving aircraft due to non-adherence to SOPs per 10,00,000 movements	CAO, CHO, AERD, GHSP
2.7.3	Number of ramp collision involving aircraft due to supervisory lapse per 10,00,000 movements	CAO, CHO, AERD, GHSP
2.7.4	Number of airports having apron safety team	AERD, GHSP

As the airport operator, BIAL has understood that the SPIs defined by DGCA can be achieved only when the smaller occurrences at the airport can be controlled effectively with the support of GHSPs. This though process goes along with “take care of small things, big things will be automatically taken care”. Based on the above NASP requirements, BIAL has further broken down each line item of SPI into smaller indicators for the GHSPs, which had two prominent approaches as below:

- ✓ Reducing the Safety Performance target value for state advised SPI.
- ✓ Including additional SPIs derived from a data driven approach (capturing near miss and occurrences) and setting up Safety Performance Target values.

SPI	Safety Item/Measure/Indicator
1	Major Accidents (aircraft damage / involves fatality) per 10,00,000 movements
2	Human injury
3	Hydraulic Oil/fuel spillage from GSE's /Equipment Failure on flight
4	Crossing in front of taxing aircraft within 200M in front and 250M at rear
5	Infrastructure Damage by vehicle/ Equipment

These classified Indicators and Targets are being mutually agreed by the Ground Handling Agencies and tracked monthly vis-à-vis various alert levels.

2.3.2 GSE Maintenance and Compliance

DGCA India provides elaborated guidelines for standardization of Ground Handling equipment at airports. This covers critical aspects like aging of GSE, usage of electric GSE and GSV and Geotagging & Geofencing. Also, a special note is about ensuring the fitness of non-registered vehicles within aerodrome operation. At KIAB, the health of GSEs/GSVs is ensured by abiding the following methods.

- 2.3.2(a) Enhanced Quality/fitness checks during Induction/Renewal of AVP & AEQP. This includes quality checks through a self-made checklist, which contains parameters majorly from IATA AHM GSE specifications and recommendations from past incidents.

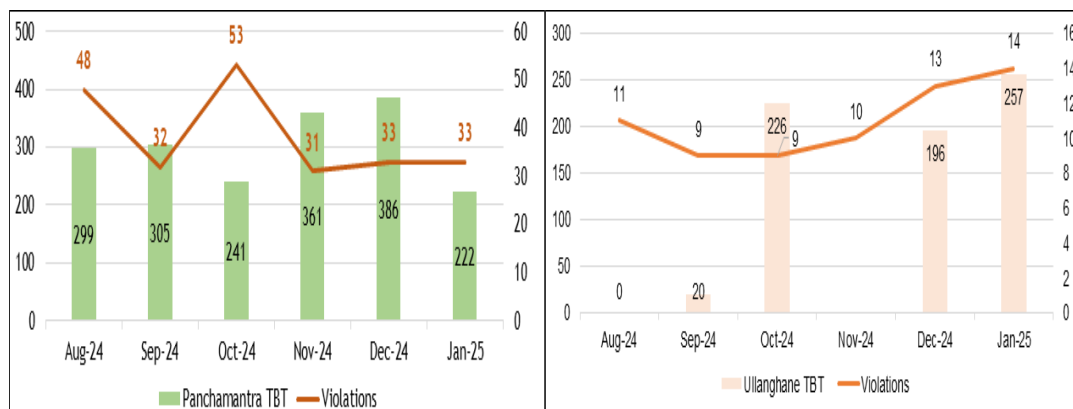
 Bangalore International Airport Limited																	
STEPLADDER INSPECTION CHECKLIST FORM																	
Department: Aviation Safety																	
BIAL/AS/Step ladder Inspection Checklist/Form no-04																	
Date & Time																	
Sl. No.	Company name	Equipment No.	Company Name and Logo (200mm x 260mm)	Obstacle Light - Amber	Suitable Fire extinguisher (up to date)	Ground lock condition	Equipment Painting / Cleanliness	Reflector - Red or Amber (Front & Rear)	Brake or chock	illumination of light on stairs	Tire Condition	No Loose fittings/ Live wires	Soft compressible Buffer	Stair area to be non-slip	Top platform equipped with sliding handrails and unobstructed opening and closing of Aircraft door	No sharp edge on stairway platform and handrails	E ramp operating switches have different in colour

2.3.2(b) Bringing in performance monitoring towards GSE upkeep under SPI, SPT of Ground Handling Service Providers

2.3.2(c) In-depth Incident/Near miss/Occurrence data analysis focused on weak links within maintenance and material related issues of GSE's

2.3.3 Workforce Competency Development

The Aerodrome Safety Training is focused on educating various verticals of Ground Handling Service Providers in terms of Local Aerodrome layout, regulations relating to procedures, safety of personnel and adverse weather operations. It is ensured that all the Airside entry passes are issued after going through this typical training program. Also, specialized training is being given for clearing an Airside Driver Permit, Passenger Boarding Bridge operator and driving on maneuvering areas. A concept of Toolbox Talk (TBT) has been adopted to conduct awareness sessions for GHAs as a risk-based mitigation



2.3.4 Addressing procedural gaps

Special care has been given to address the procedural gaps which may lead to an untoward incident relating to aircraft. For example, the “**Wing Walking Procedure**” had difference of understanding between GHSPs and the trainings were often not regulated. However, considering the criticality the airport operator stepped in to frame a Local Aerodrome Regulation mandating the need of walking wing, uniformity in signaling methods and enhancement in training competency and frequency.

2.3.5 Community-Based Safety Engagement



2.3.5(a) HITG: Hazard Identification Task Group

HITG is a closed Group, formed with the core group members such as Safety Heads of major Airlines and GHA’s. This group was initially formed to capture safety concerns within their areas of operation and share some good organizational practices as lessons learnt. Over a period, the program has matured to a stage where common HAZLOG was formed, and incidents were mapped on a regular basis. The group was further trained in enhanced Safety Data Management to derive Safety Intelligence and initiate remedial actions. This allowed the Safety Heads to cross-learn and develop effective mitigation measures by learning from other’s mistakes

The key achievement towards an enhanced safety culture through HITG is that the Airline and GHA are comfortable in discussing organizational safety risks under one roof with utmost integrity and cross learn effective mitigation measures and various good practices. A leap towards **Learning Culture**.

2.3.5(b) Safety Ambassador Community

Safety Ambassador community is formed with the group of identified members who are frequent Reporters. The members have been chosen from different levels of work such as Loading, Driving, Ramp staff, Security staffs and Aircraft Maintenance Engineers. The essence of this team is that they provide an increased Voluntary Safety Reporting which is often rewarded individually and during various Safety Programs. They also encourage their fellow workers to report the safety hazards.

The Key indicator towards an enhanced safety culture through this community is that the voluntary safety reporting has immensely increased, and an element of belief has been created that all reports are addressed, and the proper reporting staff are rewarded. A leap towards **Reporting culture and Just culture**

2.3.5(c) Safety Training Community

The Safety Training Community is formed with the group of training leads from major airlines and GHAs. The core function of this community is that they are constantly provided with safety critical knowledge which is incorporated into their training module and used across various Initial, Refresher and Recurrent trainings. Also, the team coordinates safety awareness programs and constantly upkeeps the knowledge of respective teams.

The Key indicator towards an enhanced safety culture through this community is that the knowledge towards regulations and safety critical data is constantly conveyed to the frontline. A leap step towards **Learning culture and Informed culture**

2.4 Conclusion

Effective collaboration between aerodrome operators and GHSPs is fundamental to maintain high safety standards in airside operations. By adopting a structured approach, KIAB demonstrates a proactive strategy in mitigating potential hazards. Moreover, fostering a culture of shared responsibility through community engagement and transparent communication further strengthens the safety framework. Continuous improvement, data-driven decision-making, and adherence to international best practices will ensure sustainable safety enhancements in the evolving aviation landscape.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

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