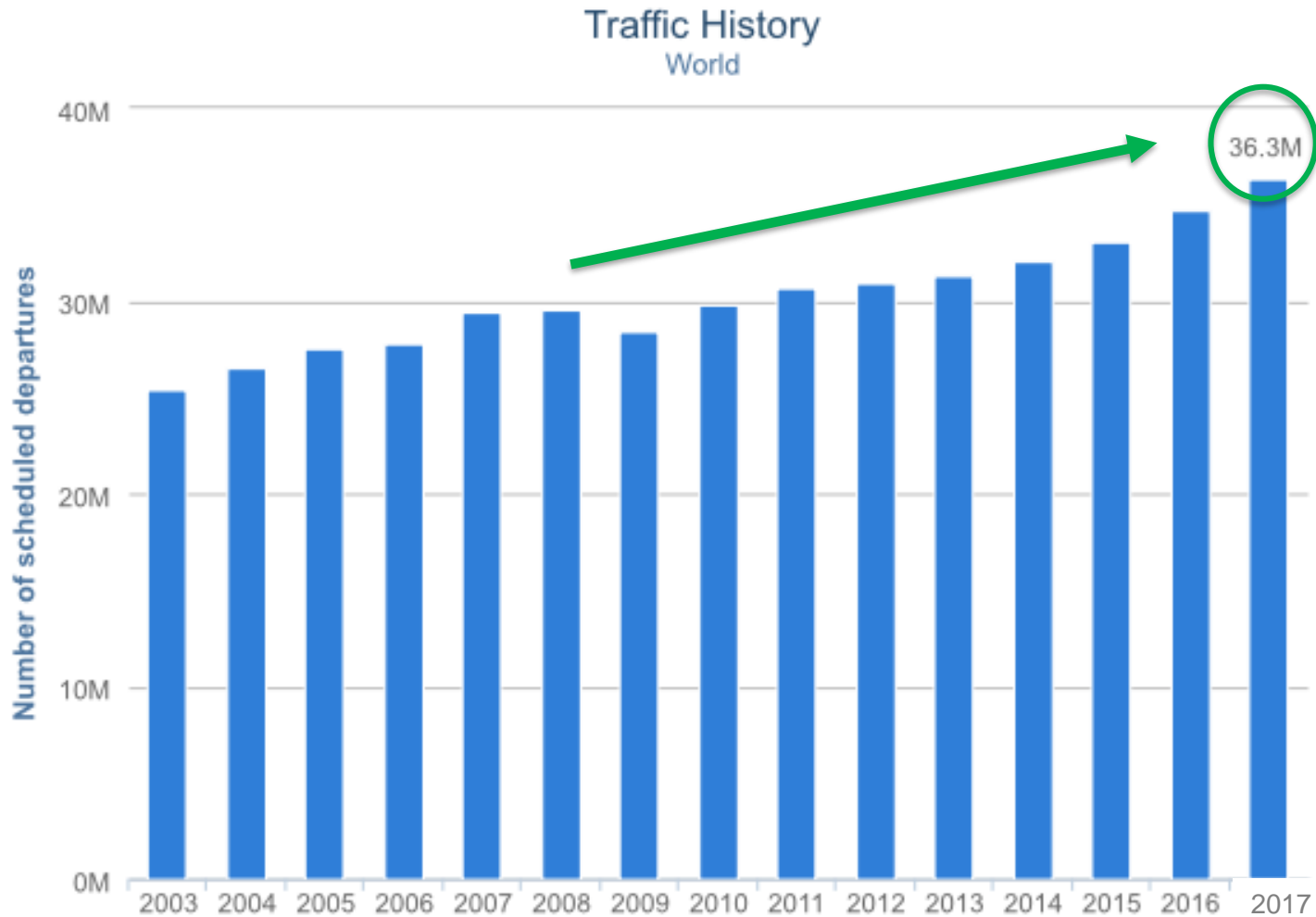


Singapore Aviation Safety Seminar

Risk Management - Runway Occurrences Harmonization and standardization of international standards

Strong air traffic growth - Global air traffic figures (2003-2017)



Source: ICAO ISTARs

Strong air traffic growth - Global air traffic figures (Cont'd)

ABOUT US | CAREERS | CONTACT & SUPPORT

PROGRAMS | POLICY | PUBLICATIONS | SERVICES | TRAINING | EVENTS | PRESS

Home > Pressroom > Press Releases

Press Release No.: 55
Date: 24 October 2017

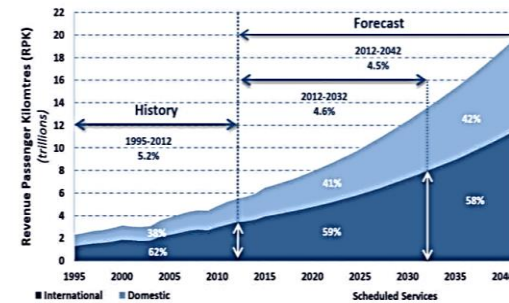
2036 Forecast Reveals Air Passengers Will Nearly Double to 7.8 Billion

Translations:

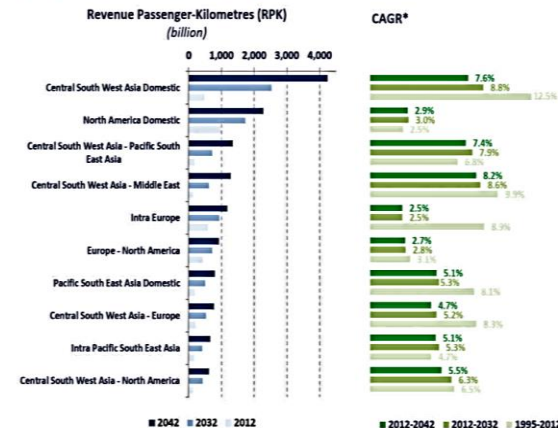
- Les projections pour 2036 indiquent que le nombre d'aériens va presque doubler, atteignant 7,8 milliards.
- Los pasajeros aéreos casi se duplican en 2036 millones (pdf)
- Previsão para 2036 revela que passageiros aéreos dobrar até 7,8 bilhões (pdf)

> 国际民航组织：2036年全球航空客运量几近翻倍 增至7.8亿人次 (pdf)

Total passenger traffic: history and forecasts



World top 10 passenger traffic by route group: 2012 vs. 2032 and 2012 vs. 2042



Source: IATA 20-year air passenger forecast; ICAO Long term traffic forecasts

Strong air traffic growth in APAC region

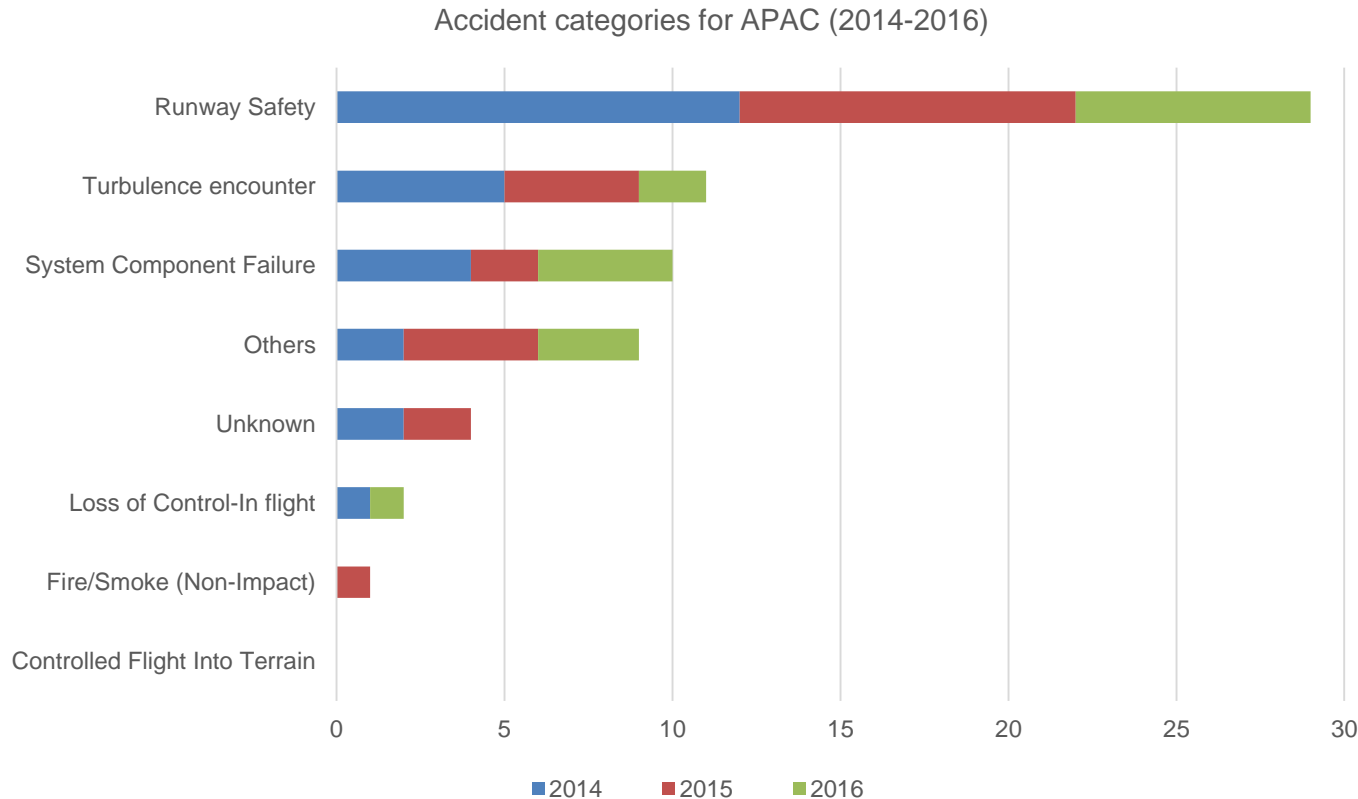
- The APAC region will generate more than half of the world's new passengers over next 20 years
- Airlines expanding aggressively to tap on this anticipated growth
- Increasing pressure on airspace capacity, airport infrastructure and manpower
 - Some major APAC airports will be close to runway/terminal capacity by 2019



Source: IATA airport capacity map

Strong air traffic growth in APAC region (Cont'd)

- States need to ensure growth is managed safely
 - Runway safety remains top accident category in APAC from 2014 to 2016
 - Runway safety particularly challenging given wide-ranging issues and involve multiple stakeholders



Source: RASG-APAC Annual Safety Report 2017

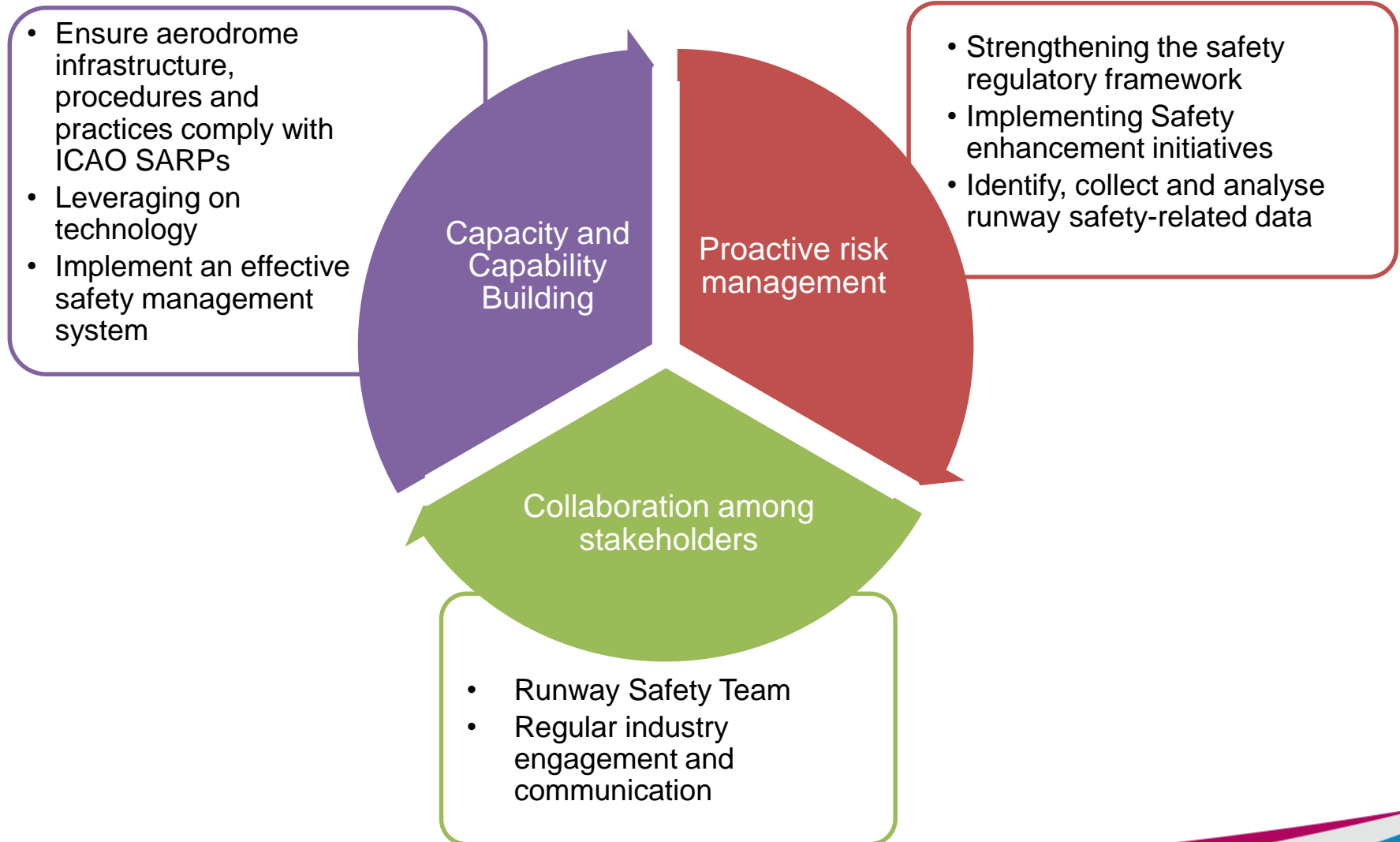
High risk runway occurrences

- Runway excursion
- Runway incursion

High risk runway occurrences – contributing factors

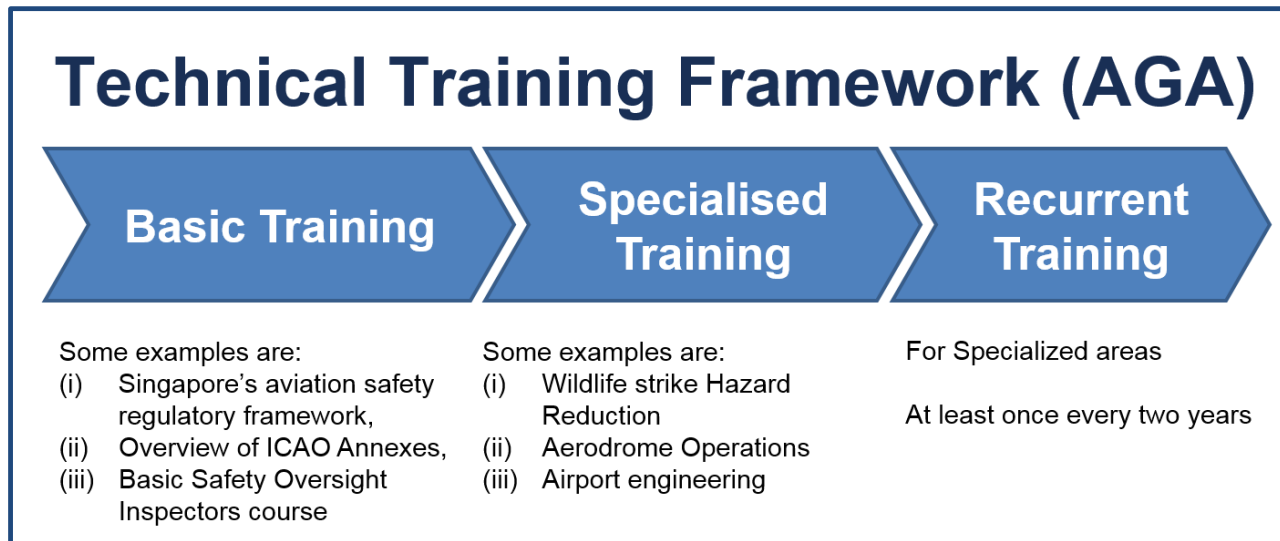
- Human errors
- Communication errors
- Lack of Standard Operating Procedures
- Inadequate training
- Ineffective safety management
- Inadequate regulatory oversight
- Aerodrome design
- Runway surface condition
- Equipment
- Weather

Harmonisation and standardization of international standards – A multi-pronged approach



Ensuring sufficient and competent regulatory personnel

- Regulatory personnel has grown in number over the years with increased aviation activities in Singapore
 - Significant increase in Aerodrome and ANS regulatory personnel in line with the new developments
- Technical training framework for regulatory personnel
- Singapore is part of the APRAST Capacity Building Task Force
 - Develop regional capacity building action plan



Proactive Risk Management

Strengthening safety regulatory framework

- Enhancement of regulations e.g. the aerodrome certification framework
- Surveillance system data driven and based on risk assessment

Implementation of Safety enhancement initiatives

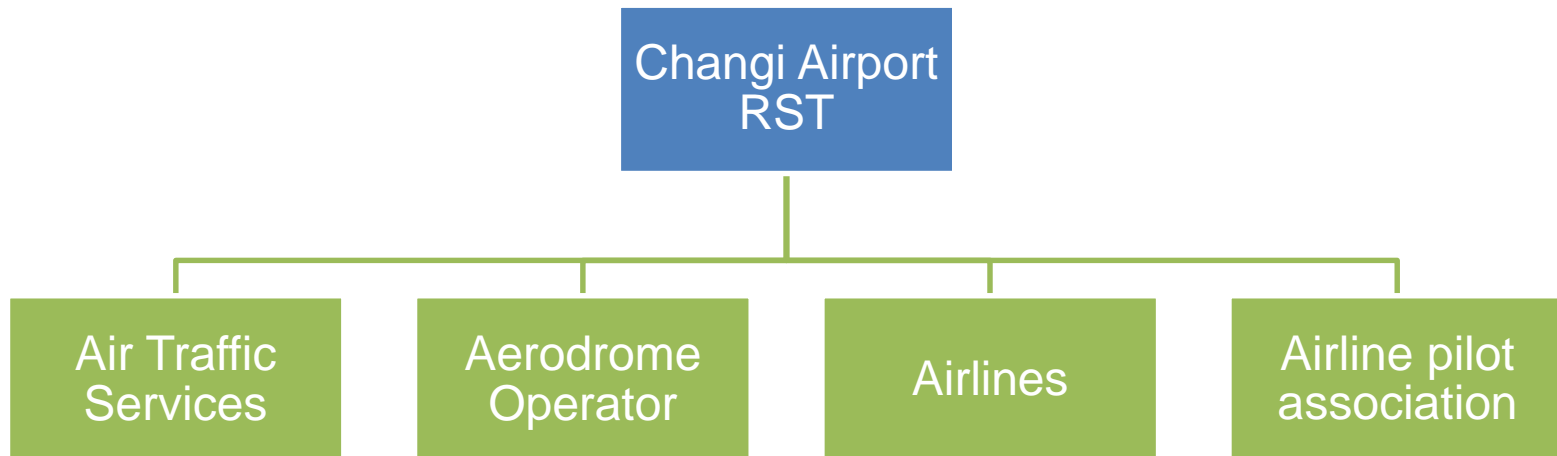
- Investigation of runway safety-related occurrences
- International/regional initiatives e.g. APRAST Safety enhancement initiatives on Runway Excursion/Incursions

Collection and analysis of runway safety-related data

- Reactive (e.g. accidents/incidents) and Proactive (e.g. precursor events)
- Monitoring of safety trends and industry's Safety Performance Indicators

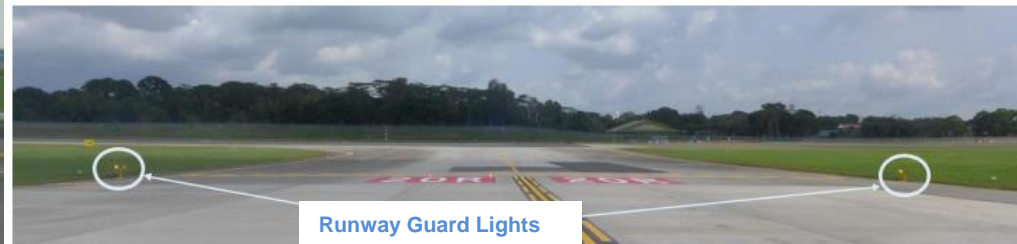
Collaboration among stakeholders

- Runway Safety Teams key to managing runway safety
 - Co-chaired by CAAS Air Traffic Services and aerodrome operator (i.e. Changi Airport Group Airside Operations)
 - Involving all relevant stakeholders and are suitably represented
 - Meets regularly to identify runway safety hazards (e.g. FOD, wildlife); develops and coordinates implementation of runway safety enhancement initiatives



Safety enhancements from the RSTs

- Enhanced airfield markings such as taxiway centerline markings
- Enhanced airfield lightings such as runway guard lights
- Enhanced access control to runways by e.g. plastic chain barriers at roadways leading to runways
- Enhanced awareness on stop bar rules for pilots and airside vehicle drivers
- Standardised Radiotelephony Phraseology (RTF)



Joint Committee on Airside Safety

- Comprises senior management from CAAS, Changi Airport Group, ground handlers, airlines and union
- Primary focus:
 - Identify safety hazards and risks related to apron and runway operations
 - Develop and implement actions plans to improve apron and runway safety
- Key issues under discussion:
 - Measures to prevent runway incursion e.g. complying with stop bar rules
 - Established Changi airport FOD policy in cooperation with other airside users



Industry Engagement and communication

- Regular meetings between aerodrome operator and Air Traffic Services to discuss operational issues
- Regulator-industry engagement sessions e.g. “CAAS Safety Series” seminars
- Periodic safety publications, campaigns



With increasing aircraft movements and growing complexities in the airfield, the risk of runway safety incidents occurring has also increased. Indeed, runway safety incidents now account for over 50% of all accidents involving scheduled commercial air traffic globally. Therefore, improving runway safety is a key area of focus for the global aviation industry.

Runway incursions are an example of runway safety incidents and are defined by the International Civil Aviation Organization (ICAO) as an occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a “surface designated for the landing and take-off of aircraft”, i.e. the runway. Singapore has a fair share of such incidents. While many of these incidents have been classified as Category D incursions, and Singapore’s runway incursion rate remains lower than the average of Asia region, CAAS is relentlessly vigilant in keeping our runways safe.

Categorising a Runway Incursion
ICAO ranks runway incursions according to their severity, Category A being the most severe and Category D the least:

- A – a collision narrowly avoided
- B – significant potential for collision
- C – ample time / distance to avoid a collision
- D – no immediate safety consequences

CAAS, together with our stakeholders, continues to explore and implement measures to enhance runway safety at Singapore’s airports. For instance, detailed investigation into runway incursions provide us with insights and enable us to identify safety gaps leading to these incidents. Measures can then be formulated and implemented to address these gaps. To ensure that runway safety measures are implemented by the stakeholders in a coordinated manner, ICAO recommends that Runway Safety Teams (RST) be established at aerodromes. An RST is a multidisciplinary team comprising key stakeholders in runway safety, such as the aerodrome operator, the air traffic services provider, airline operators, the pilots’ association, and the meteorological services provider.

Changi and Seletar Airports each have their respective RST. Each RST meets regularly to identify current and emerging runway safety issues, develop initiatives to address these issues, and ensure that these initiatives are implemented in a targeted, tailored and timely manner. One such initiative is to extend the installation of microwave barrier

¹ The Asia region registered a runway incursion rate of 1.12 runway incursions per 100,000 aircraft arrivals in 2012, according to the 2012 Civil Air Navigation Services Organization Safety Performance Benchmarking Report.

