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Runway Safety

Aviation's #1 Safety Priority

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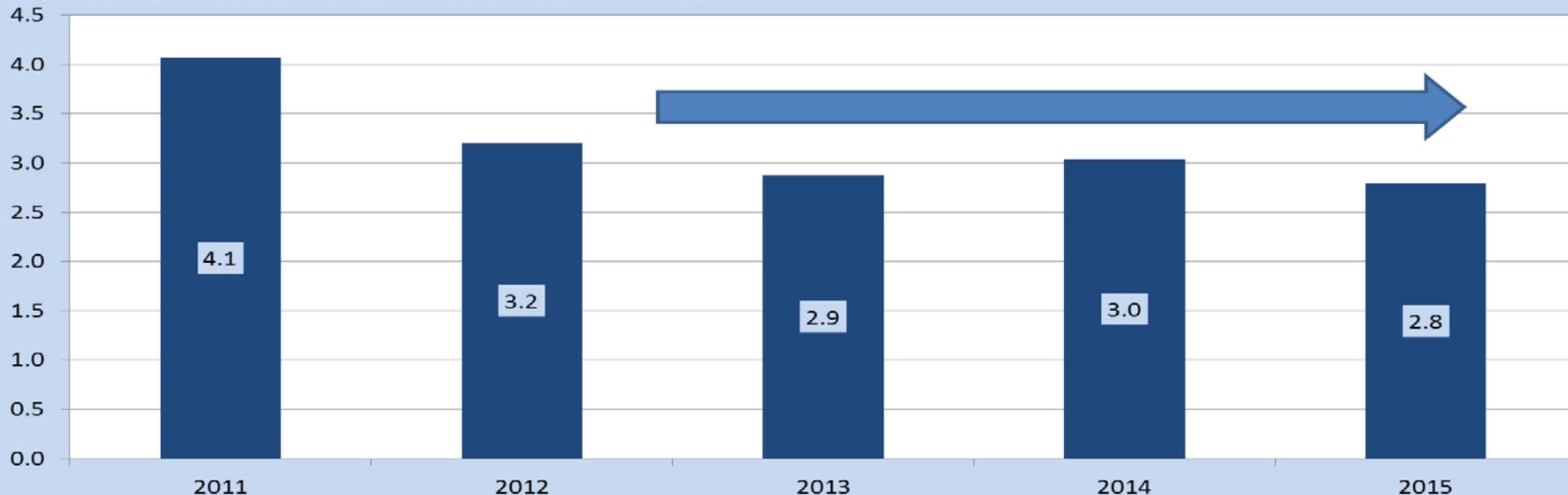
COMING SOON!

GLOBAL AVIATION SAFETY REPORT 2016 EDITION



GLOBAL ACCIDENT RATE

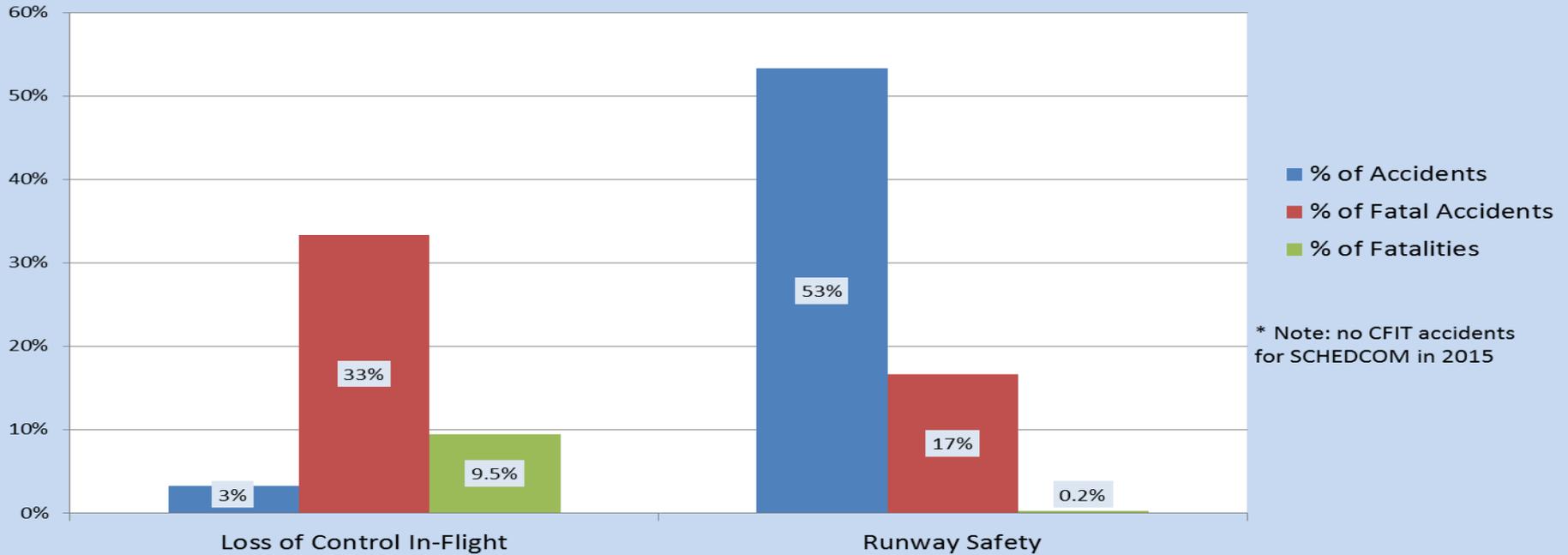
NUMBER OF ACCIDENTS PER MILLION DEPARTURES



GLOBAL ACCIDENT RATE CONTINUES TO BE *STABLE*

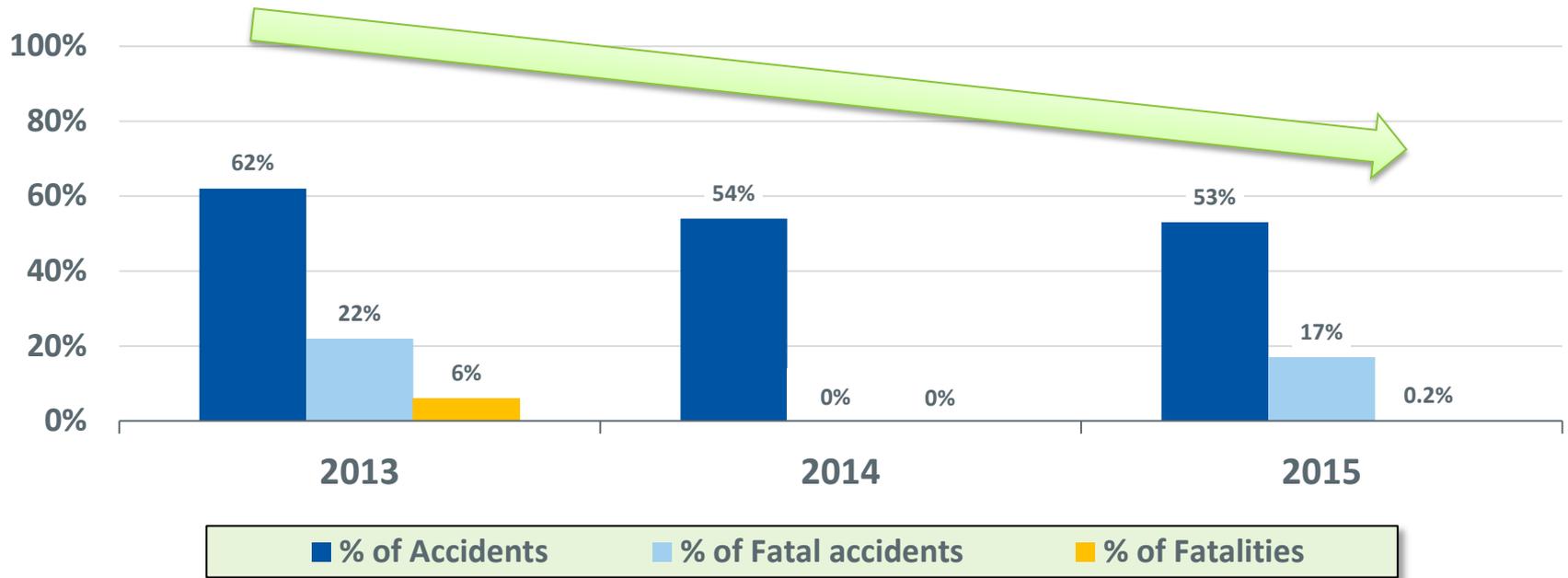
Percentage of all Accidents*: 2015

FOR TOP HIGH-RISK OCCURRENCE CATEGORIES (RS, LOC-I, CFIT)



* Note: no CFIT accidents for SCHEDCOM in 2015

Runway Safety related Accidents





Runway Safety related Accidents

Year	2013	2014	2015
% of accidents involving Runway Safety	62%	54%	53%
% of fatal accidents involving Runway Safety	22%	0%	17%
% fatalities involving Runway Safety	6%	0%	0.2%



Runway Safety in 2016*

Year	2016
Number of accidents involving Runway Safety	33

*Preliminary data not validated, as of September 03, 2016

List of Runway Safety Accidents – up to 2 May 2016

Date	Airport	Aircraft Type	Flight Phase
03/01/2016	CHICAGO O'HARE INTL (KORD), Chicago, IL (USA)	Canadair CL-600-2C10 Regional Jet CRJ-702	Standing
09/01/2016	RONDONOPOLIS (SWRD), Rondonopolis, Brazil	ATR ATR 72	Approach
14/01/2016	HOSEA KUTAKO INTL (FYWH), Windhoek, Namibia	Airbus A319-112	Approach
28/01/2016	SHAHID HASHEMI NEJAD INTL (OIMM), Mashhad, Iran	Boeing (McDonnell-Douglas) MD-80	Landing
14/02/2016	PRES JUSCELINO KUBITSCHKE INTL (SBBR), Brasilia, Brazil	Boeing 737 (NG)	Standing
03/03/2016	CHHATRAPATI SHIVAJI INTL (VABB), Mumbai, India	Boeing 737 (NG)	Taxi
04/03/2016	BOLE INTL (HAAB), Addis Ababa, Ethiopia	Boeing 787	Standing
21/03/2016	GUARANI INTL (SGES), Ciudad Del Este, Paraguay	Airbus A320	Landing
23/03/2016	PERETOLA (LIRQ), Florence, Italy	BAE SYSTEMS (Avro) RJ Avroliner	Landing
27/03/2016	ASTANA (UACC), Astana, Kazakhstan	Fokker 100	Landing
28/03/2016	LIC BENITO JUAREZ INTL (MMMX), MEXICO CITY	Sukhoi Superjet 100	Take-off
04/04/2016	HALIM INTL (WIHH), Jakarta, Indonesia	Boeing 737 (NG)	Take-off
15/04/2016	LOS ANGELES INTL (KLAX), Los Angeles, CA (USA)	Boeing 747	Landing
20/04/2016	GANDER INTL (CYQX), Gander, Canada	Hawker Beechcraft 1900	Landing
28/04/2016	MARISCAL LAMAR (SECU), Cuenca, Ecuador	Embraer 190	Landing
30/04/2016	CATANIOA-FONTANAROSSA (LICC), Catania, Italy	Fokker 50	Landing
01/05/2016	KANGDING (ZUKD), Kangding, China	A319	Approach



Cont'd

Date	Airport	Aircraft Type	Flight Phase
02/05/2016	PRISTINA INTERNATIONAL AIRPORT (BKPR), Pristina, Kosovo	Boeing 737	Landing
03/05/2016	KHOVD AIRPORT (ZMKD), Khovd city, Mongolia	Boeing 737 (NG)	Take-off
07/05/2016	DEVI AHILYABAI HOLKAR INTERNATIONAL AIRPORT (VAID), Indore, India	ATR 72	Landing
28/05/2016	PARIS CHARLES DE GAULLE AIRPORT (LFPG), Paris, France	Airbus A320-214	Taxi
27/05/2016	TOKYO INTERNATIONAL AIRPORT (RJTT), Tokyo, Japan	Boeing 777	Take-off
28/05/2016	MANCHESTER AIRPORT (EGCC), Manchester, England	Airbus A320	Taxi
06/06/2016	INCHEON INTERNATIONAL AIRPORT (RKSJ), Seoul, South Korea	McDonnell-Douglas MD-11	Take-off
15/06/2016	SOUTH BIMINI AIRPORT (MYBS), Bimini, Bahamas	Hawker Beechcraft Beech 99	Landing
19/06/2016	Kharg Airport (OIBQ), Kharg Island, Iran	BAE SYSTEMS (HS) 146	Landing
21/06/2016	GOMA INTERNATIONAL AIRPORT (FZNA), Goma, Democratic Republic Of The Congo	Fairchild/Dornier 228	Landing
27/06/2016	SINGAPORE CHANGI AIRPORT (WSSS), Changi, Singapore	Boeing 777	Landing
12/07/2016	CALGARY INTERNATIONAL AIRPORT (CYXC), Calgary, AB	Hawker Beechcraft 1900	landing
03/08/2016	DUBAI INTERNATIONAL AIRPORT (OMDB), Dubai, United Arab Emirates	Boeing 777	Landing
05/08/2016	ORIO AL SERIO INTERNATIONAL AIRPORT (LIME), BERGAMO, ITALY	Boeing 737	Landing
08/08/2016	BENAZIR BHUTTO INTERNATIONAL AIRPORT (OPRN), ISLAMABAD, Pakistan	Airbus A320	Landing
14/08/2016	NARITA INTERNATIONAL AIRPORT (RJAA), Tokyo, Japan	Boeing 787	Take-off

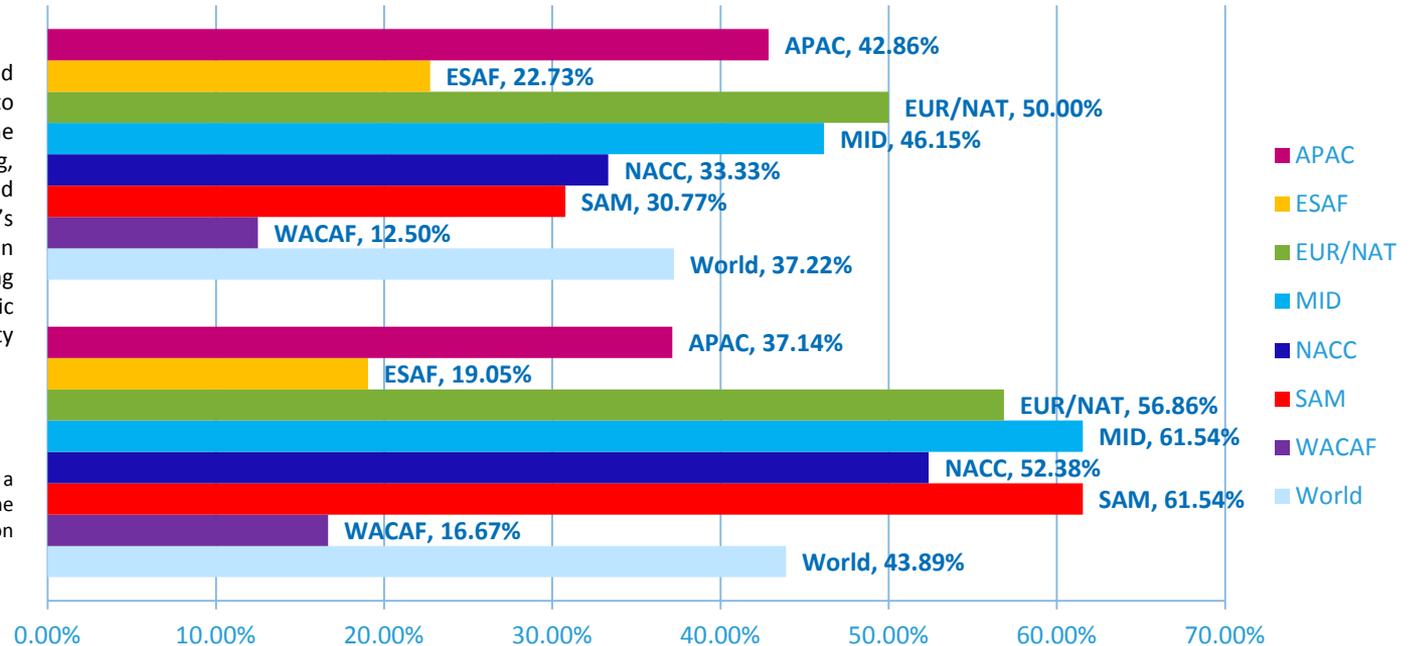
Average EI of PQs: 7.189 & 8.205 for World: 40.56%

PQ 8.205

Has the State established and implemented a process to ensure that an aerodrome operator's plan for lighting, signs and markings is integrated as a whole into the aerodrome's runway incursion and collision avoidance strategy, taking account of different traffic intensities and visibility conditions?

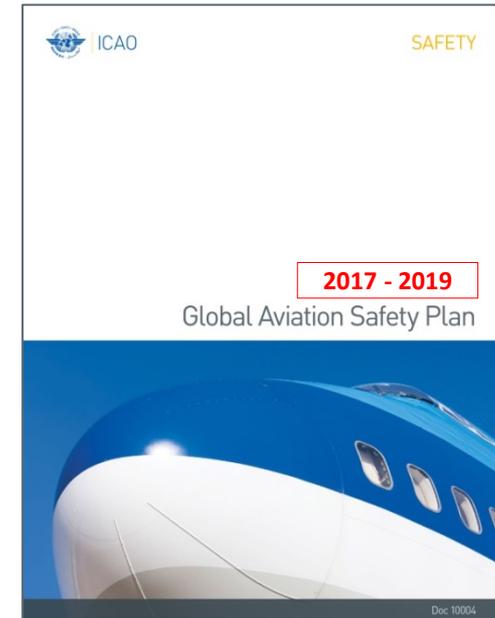
PQ 7.189

Has the State promulgated a regulation requiring the establishment and implementation of a runway safety programme?



GASP 2017-2019 Edition

- Runway safety events identified as **one of the top high-risk accident categories**
- **Runway safety-related events** include, but are not limited to: abnormal runway contact, bird strikes, ground collisions, events related to damage from ground handling operations, runway excursions, runway incursions, loss of control on the ground, collision with obstacle(s), undershoots and overshoots
- **Over half of the accidents worldwide** involved runway safety events
- Runway safety was the **prevalent accident category** for all the regions





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Runway Safety Programme



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ACHIEVEMENTS AND PLANS (since mid-2014)



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RSP Achievements - 2014

- Published ICAO RST Handbook
- Launched RS Implementation Kit (I-Kit)
- RRSS (AFI, SAM & MID)
- Runway Safety KPIs WG – Workout Sessions
- Regional Dashboards – RS accidents
- Runway Safety Go-Teams – methodology, pilot missions
- iSTARS/SPACE on-line list of aerodromes
- ACI APEX Airport Safety Reviews
- IATA Airport Analyses





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RSP Achievements - 2015

- 2nd edition of ICAO Runway Safety Team (RST) Handbook
- RASG Safety Enhancement Initiatives (SEI) related to runway safety, Detailed implementation plans (DIP), & related activities
- Regional publications – guidance and safety advisories
- Runway Safety Go-Team missions
- ACI APEX Airport Safety Reviews
- IATA Unstabilised Approach Guidance
- US FAA Academy ICAO TRAINAIR Standardized Training Package (STP) on “Runway Incursion Prevention”
- Updated Runway Safety implementation kit (iKIT) on ICAO website at www.icao.int/safety/runwaysafety





APAC RO Report

Completed Runway Safety RASG-APAC SEIs and publications:

- Runway Safety Maturity Checklist
- Unstable Approaches - ATC Considerations - <https://www.canso.org/unstable-approaches-air-traffic-control-considerations>
- Guidance on runway maintenance and operations – Aerodrome Operator’s perspective - available on ACI website

Other Runway Safety SEIs in progress:

- Model AC on Runway Incursion Standard Operating Procedures – Runway Incursion Prevention and Pilot Training
- Enhanced Surface Marking and Lighting
- Identify the probable causal factors associated with pilot decisions not to go around when a go around is appropriate
- Develop guidance material and training programs to establish and operate runway safety team



ESAF RO Report

6 Airports with established Runway Safety Teams

Regional Runway Safety Seminar was held in Livingstone, Zambia, 9 - 10 October 2014

Runway Safety Go-Team missions:

- 4TH OF FEBRUARY (FNLU) - Luanda, Angola (4 - 6 November 2014)
- Planned: Botswana, Seychelles, Uganda, Zambia, Zimbabwe



WACAF RO Report

Developed guidance material and training programs to establish and operate runway safety team.

Runway Safety Workshop

- 53rd ACI Africa Board and Working Groups Meeting & Regional Conference and Exhibition, Casablanca, Morocco, 18 – 22 April 2015

Runway Safety Go-Team missions:

- LEOPOLD SEDAR SENGHOR (GOOY) – Dakar, Senegal (20 – 24 October 2014)
- TOKOIN (DXXX) - Lomé, Togo (14 - 16 July 2015)
- BANJUL INTL (GBYD) - Banjul, Gambia (25-27 August)
- MURTALA MUHAMMED (DNMM) - Lagos, Nigeria (18 – 20 January 2016)
- MAYA-MAYA (FCBB) - Brazzaville, Congo (17 – 19 February 2016)
- A. NETO (FCPP) - Pointe Noire, Congo (23 – 25 February 2016)

Several Go-Teams missions (covering all international aerodromes of the WACAF States) planned in the AfDB Project which is under review.



EUR/NAT RO Report

23 Runway Safety Teams reported to ICAO

- In addition, all Russian airports have RSTs established as per order of Russian CAA

SMS/RWY Safety Seminar held on 19-20 July 2016 in Moscow, Russia. The Seminar has been organized with the support of ICAO, IAC, FAA, Rosaviatsia (Russian CAA) and Airbus. The Seminar was attended by over 180 representatives of CAAs and airports of Armenia, the Republic of Belarus, Republic of Kazakhstan, Kyrgyz Republic and Russian Federation.

Runway Safety Go-Team missions:

- BEN GURION (LLBG) - Tel Aviv, Israel (08-10 November 2016)
- ESENBAGA (LTAC) – Esenboga, Turkey (Planned 4th Qtr 2016)

RASG-EUR have two Safety Enhancement Initiatives developed on runway safety

- SEI IE-REST/IE-RSG/01 related to Runway Safety Standard Operating Procedures (SOP) Promotion
- SEI IE-REST/IE-RSG/02 related to Runway Safety Team Guidance and Implementation

RASG-EUR to publish safety advisory on guidance for Air Operators in developing SOP supporting runway safety (scheduled for November 2016)

Translation into Russian of the ICAO RST Handbook on the ICAO EUR/NAT website and at:
http://favt.ru/favt_new/?q=novosti/aktualnaja_informacija/aktualnaja_informacija/4348



MID RO Report

20 RSTs established which represents 30% of the required RSTs of the MID Region aerodromes

Second meeting of the RASG-MID Runway and Ground Safety Working Group (RGS WG/2) held in Cairo, Egypt, 19 to 21 May 2015

Runway Safety Go-Team missions:

- KHARTOUM (HSSS) - Khartoum, Sudan (30 November to 4 December 2014 in conjunction with ACI APEX Safety review)
- KUWAIT INTL (OKBK) - KUWAIT, Kuwait (15-18 February 2016)
- QEEN ALIA INTL (OJAI) - Amman, Jordan (Planned 5th Sep 2016)

RASG-MID Safety Advisories which have been circulated by State Letters and are available on the ICAO MID website at:

www.icao.int/MID/Pages/rasgmid.aspx

- RSA-01 containing Guidance for Harmonising the Use & Management of Stop Bars at Airports - November 2014
- RSA-02 containing Guidance on Regulatory Framework Supporting Establishment of Runway Safety Teams - January 2015
- RSA-03 containing Model Checklist for Runway Safety Teams (RSTs) - March 2015
- RSA-05 containing Aerodromes Certification Toolkit - September 2015
- RSA-10 containing Guidance on Periodic Surveillance Audits of Aerodrome Infrastructure & Maintenance - August 2016
- In the pipeline: RSAs on Aerodrome Safeguarding , Laser Attack, and Wildlife management.



NACC RO Report

10 Runway Safety Teams established

- 2015 Workshop on Best practices to prevent Runway Incursion/Runway Excursions (Regional Office, 11 to 14 August 2015)

Runway Safety Go Team missions:

- TONCONTIN INTL (MHTG) - Tegucigalpa, Honduras (10 to 14 March 2014)
- LA AURORA INTL (MGGT) - Guatemala City, Guatemala (13 to 17 April 2015)
- JOSE MARTI INTL (MUHA) - Havana, Cuba, in collaboration with FAA to assess functioning of RSTs (13 to 15 October 2015)
- V C BIRD INTL (TAPA) - St. John's, Antigua and Barbuda (Planned 3rd QTR 2016)
- WILLEMSTAD/HATO INTL. (TNCC) - Curacao, Curacao (Planned 1st QTR 2017)

RASG-PA is currently working on the following Runway Safety Enhancement Initiatives (Detailed Implementation Plans (DIPs)):

1. RASG-PA/RE/215 – 216 –Landing Training for Flight Crews.
2. RASG-PA/RE/217 – Airline Operations and Training – Take-off Procedures and Training.
3. RASG-PA/RE/218 – Implementation of on - board technologies.
4. RASG-PA/RE/219 – Air Traffic Service Provider Training to Prevent Runway Excursions.



SAM RO Report

- 26 Runway Safety Teams Established
- Regional Mechanism for AIG Cooperation for the SAM Region (ARCM)
 - Taskforce under the AIG-SAM/RE workgroup (part of ARCM) on analysis of associated factors on RE events in 2016 on the SAM Region (on going / 2016)
- Regional Safety Oversight Organization for the SAM Region (SRVSOP)
 - SRVSOP Advisory Circular on Runway Safety Teams under Latin American Regulations (LAR), based on ICAO's RST Handbook and Brazil's experience (2017)
 - Review by OPS Panel on criteria for unstable approach parameters for operators at the SAM region (2017)
- RASG-PA Detailed Implementation Plans:
 - RASG-PA/RE/215 – 216 –Landing Training for Flight Crews.
 - RASG-PA/RE/217 – Airline Operations and Training – Take-off Procedures and Training.
 - RASG-PA/RE/218 – Implementation of on - board technologies.
 - RASG-PA/RE/219 – Air Traffic Service Provider Training to Prevent Runway Excursions.
- Other activities:
 - GREPECAS (SAM Region PIRG) project on Runway Safety under review (Project F2)
 - “Runway Safety Team Awareness” presentation on Latin American Airport Pavement Association (ALACPA) Thirteenth Annual Meeting, November-December 2016
 - CARSAMPAF (CAR/SAM Regional Wildlife committee) task on a Regional Bird Migration Alert System (2017)

Global Runway Safety Teams – 137 Teams Reported to ICAO (4 new teams reported in last 7 days)



Please visit the following link to complete survey and see the complete list of reported Runway Safety Teams:
<http://www.icao.int/safety/RunwaySafety/Pages/Runway%20Safety%20Team%20Register.aspx>



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RSP Activities/Plans - 2016 and beyond

- Runway safety team survey – 63 RSTs have registered
- Runway Safety Go-Team missions
- Annex 14 Vol. I Amendment 13 – Nov 2016
- PANS-Aerodromes 1st edition (Doc 9981) – Nov 2016
- Global Runway Safety Detailed Implementation Plan - 2016
- PANS-Aerodromes 2nd edition (Chapter 5) – 2018
- Annex 14 Vol. I Amendment – Nov 2018
- USOAP audit protocol questions on runway safety provisions





Upcoming SARPs

- **Amendment 13 to Annex 14 includes provisions for enhancing runway safety. They mainly cover the following areas:**
 - Global reporting format for measuring and reporting runway surface condition to prevent runway excursions
 - Autonomous runway incursion warning system to prevent runway incursions
 - Requirement for publishing runway end safety area (RESA) and arresting system information in the AIP to raise situational awareness
 - Improved provisions relating to aerodrome visual aids, including runway-holding position markings to prevent runway incursions
 - Taxiway design guidance to assist in the prevention of runway incursions
 - Guidance on runway surface unevenness



Future SARPs work

- **In the next triennium, in the field of aerodromes, ICAO will deliver more SARPs, PANS and guidance material to address runway safety:**
 - Second edition of PANS-Aerodromes, which will include a specific Chapter on runway safety
 - More guidance material for the assessment and reporting of runway surface condition, including the use of new technology
 - Provisions on the criteria for the design specification, installation and acceptance by a State of an arresting system in lieu of part or all of a RESA
 - Provisions on surface management, including prevention of runway incursions using A-SMGCS
 - Provisions on standardized taxiway naming convention to help prevent runway incursions
 - Procedures and updated guidance on reduction of bird/wildlife strike hazard, including the use of new methodologies and technologies
 - New/updated provisions in Annex 14 Volume I and PANS-Aerodromes for the prevention, and the installation of devices for the detection, of Foreign Object Debris (FOD) ingestion



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Runway Safety Recommendations

- RASGs to analyze **regional runway safety data** and develop related Safety Enhancement Initiative (SEI) & Detailed Implementation Plans (DIP)
- States to implement **runway safety programmes**
- Airports to implement and enhance **Runway Safety Teams (RST) and safety management systems**
- Airports to make use of the **Runway Safety iKit, RST Handbook, and other guidance material**
- Airports to request **ICAO Runway Safety Go-Team visits** and/or **ACI APEX Airport Safety Review**



RECOMMENDED



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THANK YOU!