International Civil Aviation Organization

Second Meeting of the Middle East Regional Aviation Safety Group (RASG-MID/2)

(Abu Dhabi, UAE, 12 - 14 November 2012)

Agenda Item 3: Regional Performance Framework for Safety

RUNWAY AND GROUND SAFETY

(Presented by RGS Coordinator)

SUMMARY

This paper provides an overview of the outcome of the Middle East Regional Runway Safety Seminar (MID-RRSS) which was held in Amman, Jordan14-16 May 2012.

The paper also provides a summary of initiatives made by the RASG-MID Steering Committee (RSC) and MID-RAST in the area of Runway and Ground Safety which resulted in the first draft of Safety Enhancement Initiatives (SEIs) and Detailed Implementation Plans (DIPs).

Action by the meeting is at paragraph 3.

1. INTRODUCTION

1.1 Runway and Ground Safety (RGS) has been identified by the MID Region Annual Safety Report Team (ASRT) as one of three main risk areas (Focus Areas) which will be addressed under the RASG-MID framework.

1.2 Global Runway Safety accidents represent 59% of all accidents accounting for 29% of all fatal accidents and 19% of all related fatalities reported between 2006 and 2010. In the MID Region, Runway Safety accidents represent 63% of all accidents accounting for 50% of all fatal accidents and 18% of all related fatalities reported and runway excursions represent 43% of the Runways Safety related accidents.

1.3 The MID Regional Runway Safety Seminar (MID-RRSS) was successfully held in Amman, Jordan, 14-16 May 2012. The seminar was arranged to address recommendations of ICAO Global Runway Safety Symposium (GRSS) convened in Montreal, May 2011.

2. DISCUSSION

2.1 ICAO organized the Global Runway Safety Symposium (GRSS) in 2011 in collaboration with international partners and stakeholders. One of the GRSS outcomes was to initiate Regional Runway Safety Seminars (RRSSs) in order to implement effective change and result in action plans to create Runway Safety Teams (RSTs) and provide support to those already in place.

2.2 ICAO in coordination with IATA organized the Middle East Regional Runway Safety Seminar (MID-RRSS) in Amman, Jordan from 14-16 May 2012. The Seminar was also supported by the Airport International Group (AIG) of Amman, Boeing, and Federal Aviation Authority (FAA).

2.3 More than 85 participants attended the MID-RRSS from 10 States (Bahrain, Egypt, Iran, Jordan, Morocco, Oman, Qatar, Saudi Arabia, Sudan, and UAE) and other organizations like IATA, ACI, CANSO, FAA, IFALPA and Boeing. In addition, there was participation from the following airlines: Bahrain Air, Royal Jordanian, Etihad Airways, and Qatar Airways.

2.4 The MID-RRSS consisted of two-days of presentations and a third day for a workshop and airport visit to Queen Alia International Airport. First day presentations highlighted the need for collaborative approach, regional issues, and provided an overview on runway incursion/excursion from the perspectives of pilot, airport operator and air traffic controller.

2.5 Second day presentations addressed examples for taking a collaborative approach, establishing RSTs, and identified mitigation options. The second day ended with a Panel Discussion involving interviewees from RASG-MID, ICAO, IATA, ACI, and CANSO. The participants were apprised of ICAO initiatives on runway safety and commitment from international organizations to work together to promote proven solutions and endorse best practices. The third day workshop and airport visit provided practical experience in establishing a runway safety team and practice in identifying hazards on the airside of an airport.

2.6 The MID-RRSS highlighted the availability of ICAO Runway Safety Website and the establishment of Runway Safety Team Portal for use by Runway Safety Teams. Participants suggested that ICAO should provide additional workshops on the establishment and running of RSTs. Other suggestions included: adding RST availability to USOAP Protocol Questions, issuance of ICAO guidance materials for RST establishment and action plans, and consideration of adding RST as part of SARPs.

2.7 The MID-RRSS outcomes included the following:

2.7.1 States should develop action plans to establish Runway Safety Teams (RSTs). RSTs should be hosted by airports and include, as a minimum, representation from aerodromes, air operators and air traffic controllers;

2.7.2 ICAO to consider the creation of a Regional RST Go-Team with participation of ICAO Runway Safety partners to assist States with the creation of RSTs;

2.7.3 Safety Partners to assist/mentor the RSTs by: performing a gap analysis and assessing the areas identified, providing recommendations to support the implementation of RSTs, and supporting RSTs as appropriate; and

2.7.4 Organization of another Runway Safety Seminar/Workshop in 2013, inter-alia, to provide additional guidance on the establishment and running of RSTs.

2.8 Based on the above, the RSC/1 Meeting fully supported the establishment of Runway Safety Teams (RSTs) and agreed, accordingly, to the following Draft Conclusion:

DRAFT CONCLUSION 2/X: ESTABLISHMENT OF RUNWAY SAFETY TEAMS

That, States be urged to establish Runway Safety Teams hosted by airports and including, as a minimum, representation from aerodromes, air operators and air traffic controllers, before ***31 December 2012****.*

2.9 The RSC/1 Meeting agreed that the remaining recommendations emanating from the MID-RRSS would be taken into consideration when developing and prioritizing the Safety Enhancement Initiatives (SEI) for the MID Region. The meeting reviewed a list of mitigation measures related to the Runway and Ground Safety Focus Area as shown in in **Appendix A** to this working paper and agreed that these measures will be considered by the MID-RAST when developing the Safety Enhancement Initiatives for the MID Region.

Safety Enhancement Initiatives (SEIs) and Detailed Implementation Plans (DIPs) (outcome of MID-RAST on RGS)

2.10 The meeting is invited to recall the outcome of RSC/1 to develop RGS SEIs using the ones developed by other RASGs. The SEIs from the Pan America (PA) and Asia and Pacific (AP) RASGs were benchmarked. The MID-RAST RGS top priority SEIs and supporting DIPs regarding avoidance of unstable approaches are aligned with RASG-PA. The links to other RASGs' SEIs are included as an addition to the standard SEI template in **Appendix D** to this working paper.

2.11 The RGS SEIs were also cross checked against the RASG-MID Annual Safety Report (ASR). The report highlighted the most frequent contributing factors in RE accidents as "embedded piloting skills" followed by the human factor of "aircraft handling."

2.12 The Top Common incidents/occurrences were identified as "Unstable Approach" with Root Cause of SOP Compliance and Training. "Unstable Approach" appeared as a factor in 29% of the RE accidents. Justification against the ASR has also been added to the standard SEI template in **Appendix B** to this working paper.

2.13 The meeting is invited to note the grouping of other regional initiatives under each MID-RAST RGS SEI and the following initiatives that were referred to other Focus Areas (FAs) for consideration:

a) "Implement risk management measures taking into consideration the ones contained in ALAR" (RAST-PA/RE/7);

b) "Stabilized approaches (Performance Based Navigation (PBN) Implementation)" (RAST-PA/RE/1); and

c) "Promote PBN implementation and Approaches with vertical guidance" (RAST-AP/RE/4).

2.14 A map between the MID-RAST RGS SEIs and the other regions' SEIs is included as **Appendix D** to this working paper.

2.15 Based on the above process, the MID-RAST has proposed the following SEIs:

SEI Safety Enhancement Initiative – MID-RAST /RGS/01 - Promote pilot adherence to Standard Operating Procedures for approaches including go-around decision making (Safety Impact High – Priority 1). SEI Safety Enhancement Initiative – MID-RAST /RGS/02 - Specific training for pilots and air traffic controllers to avoid unstabilized approaches (Safety Impact High – Priority 2)

2.15.1 The purpose of these two initiatives is to reduce the likelihood of runway excursion by avoiding unstable approaches. RGS/01 focuses on pilot go-around decision making in the event of an unstable approach whilst RGS/02 centers on training for both pilots and ATC to avoid unstable approaches. Further details of these SEIs are included in **Appendix B** to this working paper.

RSG Detailed Action Plans

2.15.2 Based on the outcome of RSC/1 and the priority initiatives, two DIPs have been developed for the consideration of RASG-MID/2 which focus on pilot and ATC training activities. After review of the SEIs and DIPs from the other MID-RAST Focus Areas (Fas), it was noted that pilot and ATC training activities were common across all FAs. The MID-RAST has therefore proposed the creation of a MID-RAST Cross-Focus Area Task Force with the following objectives:

a) to eliminate duplication of effort;

b) ensure a standard approach toward pilot, ATC and aerodrome training and adherence to SOPs; and

c) ensure effective use of time and resources.

2.15.3 Further details of these DIPs are included in **Appendix C** to this working paper and draft Terms of Reference for the creation of the Task Force is included as **Appendix E** to this working paper. The format of the proposed Task Force is closely linked to RASG-PA Aviation Safety Training Team initiative which also focused on training across multiple FAs.

2.15.4 The meeting is therefore requested to consider the following Draft Conclusion:

DRAFT CONCLUSION 2/X: ESTABLISHMENT OF THE MID-RAST CROSS-FOCUS AREA TASK FORCE (CFA/TF)

That, a MID-RAST Cross-Focus Area Task Force be established to support the MID-RAST Detailed Action Plans (DIPs) across all focus areas.

SEI Safety Enhancement Initiative – MID-RAST /RGS/03 - Develop guidance material and training programs to support creation of action plans by local aerodrome runway safety teams (Safety Impact High – Priority 3). SEI Safety Enhancement Initiative – MID-RAST /RGS/08 - Identification of aerodrome Hot Spots and publish Hot Spot data in AIP if necessary. (Safety Impact High – Priority 8).

2.15.5 The purpose of these two initiatives is to generally (RSG/03) and more specifically (RSG/08) improve all elements of RSG (Runway Incursion, Runway Excursion and Other Activities Related to Runway Safety) through local aerodrome runway safety teams. It is noted that these initiatives are well supported by existing resources such as the Manual on the Prevention of Runway Incursions (Doc 9870) which provides guidance for implementation of national or local runway safety programs and ICAO Runway Safety Site. A number of initiatives from the other RASGs were included as sub-initiatives to RGS/03. Further details of these SEIs are included in **Appendix B** to this working paper.

SEI Safety Enhancement Initiative – MID-RAST /RGS/04 - Promote /monitor Implementation RESA including other means such as arresting systems (Safety Impact High – Priority 4).

2.15.6 The purpose of this initiative is to monitor and promote States' implementation of RESA SARPS in order to reduce the severity of consequences related to RE. Further details of this SEI are included in **Appendix B** to this working paper.

SEI Safety Enhancement Initiative – MID-RAST /RGS/05 - Timely and accurate notification regarding runway conditions and weather by AIS and ATS units (Safety Impact High – Priority 5)

2.15.7 The purpose of this initiative is to reduce the likelihood of runway excursion by ensuring pilots are provided with necessary information to support correct operational decisions. Further details of these SEIs are included in **Appendix B** to this working paper.

SEI Safety Enhancement Initiative – MID-RAST /RGS/06 - Regulation, guidance and specific training in relation to maintaining aerodrome runway/taxiway related markings (Safety Impact High – Priority 6). SEI Safety Enhancement Initiative – MID-RAST /RGS/07 - Regulation, guidance and specific training in relation to maintaining runways in accordance with Annex 14 (Safety Impact High – Priority 7).

2.15.8 The purpose of these two initiatives is to ensure safe, compliance and maintained aerodrome infrastructure. Further details of these SEIs are included in **Appendix B** to this working paper.

2.15.9 It is to be noted that the proposal for the Cross-Functional Area Task Force could be expanded to include supporting training/education initiatives related to the RI/RE SEIs resulting from Universal Safety Oversight Audit Programme (USOAP).

2.15.10 The meeting may wish to note that the scope of existing SEIs could also be broadened to include the RI/RE SEIs resulting from USOAP.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the initiatives undertaken by ICAO and other organizations;

b) endorse the Draft Conclusion in para. 2.8 for establishment of Runway Safety Team; and

c) endorse the Draft Conclusion in para. 2.15.4 for establishment of a MID-RAST Cross-Focus Area Task Force (CFA/TF).

d) review and endorse SEIs and DIPs related to Runway and Ground Safety (RGS) as in **Appendices B and C** to this working paper.

APPENDIX A

Runway Safety: Possible Mitigation Measures
(Extracts from the MID-RRSS 2012 Presentations)

✈ From Pilot's Perspectives

- Knowledge of airport surface markings, lights and signs
- Briefing of expected taxi out/in routing
- English language proficiency
- PA, or company calls are to be avoided while taxiing.
- Plan timing and execution of checklists to increase attention when approaching intersections and runway crossings
- Avoid high taxi speed
- Consistent use of internationally agreed standard, phraseology, and procedures
- Enhanced situational awareness, based on the use of one language – aviation English
- Complete information about expected taxi in routing and stand, taxi-out routing and runway well in advance
- Implementation of SMS
- Use maximum available aircraft external lights
- Use of latest generation technology
- Intensified Line Training
- ATC/Pilot awareness program
- Exposure using simulators
- Emphasize maximum performance take-offs
- Human Factors and training
- Information Sharing Platform (exchange of experience)
- Passenger Education on the necessity to divert from "comfort flying" – application of brakes (auto brakes) and full reverse thrust
- When in doubt, seek clarification
- To avoid non essential communication: adopt sterile cockpit concept
- Avoid communication impediments in multi- crew cockpit, define the role of each pilot
- Manage the cockpit workload
- Minimize the number of tasks to be performed when aircraft is moving during taxiing
- Standard operating procedures for: using precision approaches, visual approaches and circling approaches; selecting the most operationally suitable runway, stable approach criteria, and missed approach criteria
- Identify operational issues that can be addressed through training
- Implement an effective incident reporting system
- Use all available technologies to maintain situational awareness on the ground
- Adhere to low visibility procedures, including enhanced crew coordination, when conditions require
- Realistic training for all low visibility operations
- Use accurate aerodrome charts, where available, and essential information on aerodrome conditions
- Use of NOTAMs and real-time radio communication
- Use full runway length operations especially in marginal conditions
- Conduct an airport briefing before every operation
- Develop comprehensive guidance for operations during airport works

- From Aerodrome Operator's perspectives
    - Implementation of signs, markings and lighting in accordance with Annex 14
    - Airside Driver Training
    - Perform runway inspections on Tower Frequency
    - Encourage staff to verify clearances if not perfectly understood
    - Close Coordination of airside works with ATC for Work in Progress Meetings
    - Safety Induction to all personnel working airside
    - Supervision of airside construction work by Safety Personnel
    - Work on pull-back basis only under escort of Airport Safety
    - Provision of obstacle free overrun areas
    - Scheduled runway surface inspections
    - Inspection has to include signs, marking, and lighting, FODs, safety areas, Cracks, erosions and rubber accumulation
    - Speed should be kept as low as practicable
    - Periodical measuring for Runway friction levels (rubber deposits)
    - Treatment of contaminated runway if it cannot be avoided (A runway completely or partly covered with standing water - more than 3mm)
    - Runway Inspection Vehicles to be equipped with 2 base sets of VHF radio for TWR and GND frequency
    - Clarity of runway markings, signs and lights (PAPI, Runway end lights, etc)
    - The charts need to show hot Spots, RESA information, etc
    - Use Grid map for standby and low visibility
    - Continuous practice for appropriate response
    - Rescue and Fire Fighting (RFF) ability to locate and access excursion occurrences
    - Front line positions for RFF vehicles in case of Low visibility (to intervene on shorter times)
    - Continuous personnel training for effective emergency response
    - Adequate access roads for RFF Vehicles
    - Follow an approved maintenance program to check signage, lights
    - Provide signs for flight crews to visually determine runway remaining distance
    - Ensure the airfield and RESA conform to ICAO specifications
    - Define standard criteria for not operating runway
    - Conducting a runway safety awareness campaign that focuses on local issues
    - Install SMR with surface movement providing controller with radar picture and equip vehicles with transponders
    - Install sufficient barriers to eliminate access to active RWY
    - Avoid designs that include crossing a runway to access taxiway or another part of the aerodrome
    - Avoid complicated layout
    - Outer roads must be provided for vehicles and equipment
    - Limit vehicles entering aircraft manoeuvring areas
    - Familiarization of Airside Layout, including: Signage Markings, and Lights, Responsibilities of Drivers, Right of away, Hazards of Airside Driving, Light Gun signal from tower, Aviation phraseology, Emergency procedures
    - Airports must have adverse weather procedure available during low visibility operation
    - Use of checklist for new airport operations
    - Establish and host RST with participation of Runway Safety Partners

- From Air Traffic Controller's perspectives
    - Check that signage and markings are ICAO-compliant and visible to pilots and drivers
    - Identify potential new technologies that may enhance runway safety
    - Ensure that procedures are compliant with ICAO Standards and Recommended Practices (SARPs)
    - Initiate local awareness and training to controllers, pilots and personnel driving vehicles on the aerodrome
    - Conduct joint awareness sessions/seminars on: Arrival and approach requirements - Runway excursion - stabilized approach - aircraft performance
    - Set up familiarization programs where ATCOs and pilots can attend/observe the activities related to ATS and aircraft operations
    - Ensure that ATCOs comply with ELP requirements and use ICAO phraseology (Doc4444) during communication with approaching aircraft
    - Restrict late runway change and speed control during approach
    - Ensure that ATCOs comply with ATS requirements for the reporting of current weather information and runway conditions
    - Use of "follow-me" vehicles and Progressive taxi guidance
    - Procedures to have controllers instruct pilots to: Enter, Backtrack or line up on runway should be acknowledged by Read Back
    - Determine "line-of-sight" can aircraft at opposite ends of the runway see each other
    - Identify Hot Spots on applicable aerodrome ground movement charts
    - Use standard phraseology between vehicle drivers and ATC
    - Assign ground controller with close liaison to aerodrome operations
    - Coordinate vehicles & equipment movement periods and restrict any vehicle & equipment during bad weather
    - Minimize single controller communication coordination between local, ground and radar controllers
    - Manage the use of multiple tower / ground frequencies
    - Minimize the occurrences where one controller is responsible for traffic on multiple frequencies
    - Controllers are required to manage the movement numbers during capacity constraints
    - Controllers are to manage increased number of runway crossings very effectively
    - Air Traffic Management are required to develop Standard Operating Procedures for use during airport works
    - Follow an approved low visibility procedures
    - Routings: Avoid ATC change in routings-short cuts, Avoid changes that result in varying to distance from touchdown
    - For runway selection, consider aircraft type, avoid late changes, base on wind or operational suitability
    - Stable Approaches; avoid vectoring to short final, vector to intercept the glide slope from below, speed control, avoid high speed approaches, allow for aircraft configuration requirements
    - Limit the number of aircraft crossing an active runway
    - Select runways based on operational suitability, longest runway, into wind, least cross-wind, least turbulence, etc
    - Participate to RST work.

- Collaborative Approach:
    - Exchange information
    - Collaborate as early as possible
    - Make use of (existing) SMS systems
    - Use a holistic approach
    - Work in multidisciplinary teams

- Role of Regulator
    - Ensure that the authorization of ANSPs, certification of air operators and airports is in compliance with national regulations and ICAO Standards
    - Establish and improve requirements for specific operating procedures related to runway safety
    - Establish training and checking requirements for pilots, air traffic controllers and airport personnel
    - Ensure necessary standardization of operating procedures for military operations at joint-use airports
    - Participate in RST meetings to provide information on regulatory matters, as necessary
    - Facilitate the exchange of safety information from the CAA or other relevant agencies that could be of use to the RST
    - Intervene, where appropriate, to coordinate with other governmental agencies or external stakeholders to resolve issues that affect runway safety (noise abatement rules, obstructions on the approach path, etc)
    - Identify and raise awareness of contributory and causal factors for runway safety issues that could be used as safety performance indicators
    - Ensure that lessons learned are disseminated widely to increase understanding of causal and contributory factors and effectively implement runway excursion and incursion prevention measures
    - Promote the use of incident reporting systems
    - Refer any relevant reports submitted through a national incident reporting system to the respective RSTs
    - Provide timely feedback to operational personnel on information gleaned through analysis of incident reports and any related mitigations
    - Develop guidance to define and launch Runway Safety Teams
    - Harmonize “Runway Safety” definitions, taxonomies and reporting of runway conditions and other safety indicators
    - Standardize and improve communication procedures
    - Implementation of ICAO Standards to be monitored through the Continuous Monitoring Approach

---

APPENDIX B

RAST No	Safety Enhancement Action	GSI	Safety Impact	Changeability	IC Indicator	Priority	Possible Champion	Time Frame	Notes	Reference	Link to Other RASGs	Justification (RASG-MID Annual Safety Report - First Edition - June 2012)
MID-RAST/RGS/1	Specific training for pilots and air traffic controllers to avoid unstabilized approaches	9	High	Easy	P1	1	IATA and CANSO	Short Term	Note this is top priority of RAST-PA and RAST-AP. DIP may be coordinated on global level - or benchmarked against other regions. DIP may include awareness workshops, seminar and/or development of additional guidance or awareness information.		RAST-PA/RE/9 (Priority 2 - DIP) and RAST-AP/RE/2 (Priority 1 - DIP)	1st most frequent contibuting factor in RE accidents is 'embedded piloting skills' and 2nd most frequent human factor is 'aircraft handling' - See 4.1.2.4.1 and 2 - Top Common incidents/occurrences from MID reports - "Unstable Approach" with Root Cause airport/airline of SOP Compliance and Training. "Unstable Approach" appeared as a factor in 29% of the RE accidents. (Ref RASG-MID ASR - First Edition - 4.2.3.2.1)
MID-RAST/RGS/2	Promote pilot adherence to Standard Operating Procedures for approaches including go-around decision making	9	High	Easy	P1	2	IFALPA	Short Term	The DIP may include examining pilot action on the runway, associated policies and procedures and consideration of existing risk assessment and management processes. Note Annex 6 as reference for other regions.		RAST-PA/RE/4 (Priority 1 - DIP) and RAST-AP/RE/1 (Priority 0)	4.1.3.2.1 - RE Accidents - 83% occur during landing and 67% during daytime - 'Flight Crew Procedures" meaning non-compliance with SOPS was present in 59 accidents. - - See 4.1.2.4.1 and 2 - Top Common incidents/occurrences from MID reports - "Unstable Approach" with Root Cause airport/airline of SOP Compliance and Training.
MID-RAST/RGS/3	Develop guidance material and training programs to support creation of action plans by local aerodrome runway safety teams.	9	High	Moderate	P2	3	ICAO-MID - Nominated State Champion - ACI - COSCAP	Mid-Term	Noting SEIs from other regions it is worthwhile RSTs consider the following: - Air traffic Control Training - general and scenario based - Review of Aerodrome and ATC Standard Operating Procedures including RT Phraseology and Clearance Procedures - Pilot Training - general and scenario based - Scenario Based Training for Tower Controller - Scenario Based Training for Pilots - Note the various ICAO Global and Regional Runway Safety Initiatives related to Runway Safety and RSTs. IFALPA and CANSO may be training resources (see AP SEIs). Teams must be multidisciplinary and include airport operators, airlines, ATC, RFFS, ground handlers, service providers, etc.	Annex 14, ICAO Doc. 9137, IATA, FAA, IFALPA Airport Liaison Program and ICAO Doc 9870 (3.1). GRST outcome to establish RSTs locally and hosted by the airports. - Reference annex 14, ICAO Doc 9137; IATA; FAA; IFALPA Airport Liaison Programme - Euro Control study on Runway Excursions ICAO has established a Runway Safety Site and is establishing a Runway Safety Team Portal and tools for use by Runway Safety Teams.	RAST-PA/RE/11 (Priority 1 - DIP) and RAST-AP/RE/3 (Priority 3) and RAST-AP/RI/4 (Priority 0) to incorporate RAST-AP/RI/1 (Priority 0), RAST-AP/RI/2 (Priority 0), RAST-AP/RI/5 (Priority 0), RAST-AP/RI/6 (Priority 0), RAST-AP/RI/8 (Priority 0) into RST Mandate	
MID-RAST/RGS/4	Promote /monitor Implementation RESA including other means such as arresting systems	1	High	Difficult	P3	4	ICAO-MID - Nominated State Champion	Long Term	DIP will include establishment of supporting regulation and guidance material. Note this will include assessment of physical space as well as technologies adopted into Annex 14 in November 2012 proposed amendment (arresting systems). This SEI will not prevent runway excursions but reduce the consequences of such events.	Annex 14 - Chapter 3 - 3.5 Runway End Safety Area including proposed November 2012 update for arresting systems	RAST-PA/RE/2 (Priority 7) and RAST-AP/RE/5 (Priority 0)	4.1.3.2.1 - Ground damage in 33% of accidents related to inadequate markings or signage or inadequate RESA.
MID-RAST/RGS/5	Timely and accurate notification regarding runway conditions and weather by AIS and ATS units	1	High	Easy	P1	5	ICAO-MID - Nominated State Champion	Short Term	Note process of assessing surface condition and reporting through ATS to flight crew. Adhere to ICAO standard phraseology regarding condition (updated in proposed November 2012 amendments). Ensure reports vetted through ATC based on Aerodrome reporting information and meteorological analysis - and not only repetition of report from previous aircraft.	ICAO Annex 14	RAST-PA/RE/5 (Priority 4) and RAST-AP/RE/6 (Priority 2 - DIP)	4.1.3.2.1 - RE Accidents - 83% occur during landing and 67% during daytime - weather is contributing in 47% (1st rain/2nd windsheer)
MID-RAST/RGS/6	Regulation, guidance and specific training in relation to maintaining aerodrome runway/taxiway related markings	1	High	Moderate	P2	6	ICAO-MID - Nominated State Champion	Mid-Term	Note EASA maybe working with APAC to develop of supporting survey format. DIP will include development of national regulation, guidance materials and training/awareness initiatives. Note additional SARPs in the recently proposed amendment to Annex 14 (November 2012).	ICAO Annex 14 - Chapter 5 - 5.2 Markings - including provisions for enhanced taxiway centre line marking (Para 5.2.8.4), mandatory instruction marking (5.2.16), mandatory instruction sign (no entry) and characteristics of taxiway edge lights (5.3. I 7.7 and 5.3.I 7.8).	In part to RAST-AP/RI/1 (Priority 0) regarding only Enhanced Surface Marking and Lighting	4.1.3.2.1 - Ground damage in 33% of accidents related to inadequate markings or signage or inadequate RESA.
MID-RAST/RGS/7	Regulation, guidance and specific training in relation to maintaining runways in accordance with Annex 14	1	High	Moderate	P2	7	ICAO-MID - Nominated State Champion	Mid-Term	May include development of necessary publications including national regulation based on ICAO SARPS and guidance material regarding inspection regimes and surface assessments (i.e. friction) - as well as national or local training and safety awareness initiatives.	ICAO Annex 14 - Chapter 10 - 10.2 - Pavements (maintenance and inspection) and ICAO Doc 9137	RAST-PA/RE/8 (Priority 3) and RAST-AP/RE/9 (Priority 0) in relation to "guidance" - RAST-PA/RE/10 (Priority 2) and RAST-AP/RE/10 (Priority 0) in relation to "specific training" - RAST-AP/RE/7 (Priority 0) and RAST-PA/RE/6 (Priority 8)in relation to "improving conditions"	4.1.3.2.1 - bar chart of contributing factors

RAST No	Safety Enhancement Action	GSI	Safety Impact	Changeability	IC Indicator	Priority	Possible Champion	Time Frame	Notes	Reference	Link to Other RASGs	Justification (RASG-MID Annual Safety Report - First Edition - June 2012)
MID-RAST/RGS/8	Identification of aerodrome Hot Spots and publish Hot Spot data in AIP if necessary.	9	High	Moderate	P2	8	ICAO-MID - Nominated State Champion	Short Term	Possible outcome of RSTs or Safety Action Groups for smaller aerodromes. Regulatory Oversight of Hot Spot analysis and chart development possible if Aerodrome SMS established as of Aerodrome Certification. Hot Spots should be based on analysis of aerodrome hazards and safety events. Development of Hot Spot charts will depend on aerodrome complexity and incident data/analysis. Each aerodrome should positively respond that analysis has been undertaken at a minimum.	ICAO Doc 9870 - Manual on the Prevention of Runway Incursions - 3.4 Hot Spots ICAO Annex 4 - Aeronautical Charts	Loosely to RAST-AP/RI/7 (Priority 0) regarding Taxiway and Runway Configuration	Runway Incursion data not included in RASG-MID ASR - First Edition - however acknowledged by RSC/01 Agenda Item 2 paragraph 2.14

APPENDIX C

Detailed Implementation Plan Template

Rast No	Safety Enhancement Action	Reference	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
MID-RAST/RGS/01	Promote pilot adherence to Standard Operating Procedures for approaches including go-around decision making		9	High	Easy	P1	1	Short Term

Safety Enhancement Action (expanded)	Pilot adherence to Standard Operating Procedures (SOPs), including stabilized approach criteria and go-around decision making, is key to preventing and reducing the risk of Runway Excursions (RE). The overall strategy in mitigating REs related to pilot adherence of SOPs includes promotion of existing industry initiatives, adequate ICAO SARPs and guidance, appropriate State regulation and guidance as well as appropriate operator policies, procedures and training/awareness programs.
Statement of Work	In order to proactively reduce identified risks, the RASG-MID established the Middle East - Regional Aviation Safety Team (MID-RAST) to deal with operational safety initiatives, develop Safety Enhancement Initiatives (SEIs) and Detailed Implementation Plans (DIPs) to reduce the risks related to Runway & Ground Safety (RGS) and other identified focus areas. Industry analysis shows that REs are not only the most common but the most deadly type of runway accident. The FSF's Runway Safety Initiative identified that "Go-around not conducted" as the number one risk factor in landing REs. The RASG-MID ASR - First Edition (draft) further identified the most frequent contributing factors in RE accidents as "embedded piloting skills" and "aircraft handling." The most common reported occurrence from MID operators was "Unstable Approach" with root cause of "SOP Compliance and Training." "Unstable Approach" appeared as a factor in 29% of the RE accidents.
Champion Organization	ICAO, IATA, FSF, IFALPA
Human Resources	ICAO - International Civil Aviation Organisation (MID and HQ) IATA - International Air Transport Association (MENA and HQ) FSF - Flight Safety Foundation IFALPA - International Federation of Airline Pilot's Association ALPA - Air Line Pilot's Association, International MEBAA - Middle East Business Aviation Association IAOPA - International Council of Aircraft Owners and Pilots Association IBAC - International Business Aviation Council ICCAIA - International Coordinating Council of Aerospace Industries Associations CAAs - Civil Aviation Authorities EWGRS - European Working Group for Runway Safety (EuroControl) aircraft manufacturers other stakeholders
Financial Resources	
Relation with Current Aviation Community Initiative	ICAO Runway Safety Program ICAO/IATA Runway Excursion Risk Reduction Toolkit FSF Approach and Landing Accident Reduction (ALAR) Toolkit (version June 2010) FSF Runway Safety Initiative (RSI) - "Reducing the Risk of Runway Excursions" FSF Operators Guide to Human Factors in Aviation (FSF European Advisory Committee) FSF Annual Flight Safety Conference (most recent in September 2012) France Directorate General of Civil Aviation - Unstabilized Approaches France Directorate General of Civil Aviation - Stabilised Approaches Good Practice Guide France Directorate General of Civil Aviation - Synthesis on Unstable Approaches EWGRS - European Action Plan for the Prevention of Runway Excursions (pending publication) Airbus - Safety Library - Flight Operations Briefing Notes - Approach Techniques
Performance Goal	• Champion Organisations to confirm Performance Goals • MID-RAST to proposed establishment of cross Focus Area Task Force to support • SEIs related to pilot adherence to SOPs • MID-RAST to promote use of existing Toolkits and resources • ICAO-MID to promote relevant seminars, workshops, courses or necessary training
Indicators	see above/below
Key Milestones	• MID-RAST to arrange a meeting for Champion Organisations to confirm Performance Goals, actions and roles • RASG-MID to establish Task Force (see attached scope) • ICAO-MID to promote relevant seminars, workshops, courses or necessary training • MID-RAST to promote use of existing Toolkits and resources • RASG-MID and MID-RAST to consider Cross Focus Area Task Force recommendations in regard to joint training/promotions when appropriate, any required follow-up with States or suggested enhancements to ICAO materials.
Potential Blockers	Availability of required human resources from identified organisations
DIP Notes	1. Promotion/Communication Channels - websites, questionnaires, State Letter, press release, events, training 2. Best practice for training (airlines/training organisations) may include - recurrent training in threat and error management, practice go-arounds including below the approach minimum altitude and after touchdown (before thrust reverser deployment) (see ALAR and ICAO/IATA Toolkits for more recommendations) 3. Best practice for SOP may include - stabilize approach criteria for pilots, no fault go-around policy for unstable approaches, use of approaches with vertical guidance when available (see ALAR and ICAO/IATA Toolkits for more recommendations) 4. Best practice for CAAs may include develop of materials such as France CAA, promotion of existing Toolkits, regulation/guidance for operators to include go-around decision making and stabilized approach criteria 5. Contacts - to be confirmed

APPENDIX D

MID-RAST RGS SEIs Link to Other RASG SEIs

RAST-MID/RGS/1	**Promote pilot adherence to Standard Operating Procedures for approaches including go-around decision making**	**Priority**
RAST-AP/RE/2	Identify Specific training for pilots and air traffic controllers to avoid unstabilized approaches	1
RAST-PA/RE/9	Specific Training for pilots and air traffic controllers to avoid unstabilized approaches	2
RAST-MID/RGS/2	**Specific training for pilots and air traffic controllers to avoid unstabilized approaches**	
RAST-AP/RE/1	Promote pilot adherence to Standard Operating Procedures for approaches including go-around decision making	0
RAST-PA/RE/4	Promote pilot adherence to Standard Operating Procedures (SOPs) for approach procedures including go- around decision making process.	1
RAST-MID/RGS/3	**Develop guidance material and training programs to support creation of action plans by local aerodrome runway safety teams**	
RAST-AP/RE/3	Develop guidance material and training programmes to create action plans for runway safety teams	3
RAST-AP/RI/1	Runway Incursion -Air traffic Control Training	0
RAST-AP/RI/2	Runway Incursion Standard Operating Procedures – Runway Incursion Prevention and Pilot Training	0
RAST-AP/RI/4	Runway Safety Teams	0
RAST-AP/RI/5	Scenario Based Training for Pilots	0
RAST-AP/RI/6	Scenario Based Training for Tower Controller	0
RAST-AP/RI/8	Air Traffic Control Clearance Procedure Review	0
RAST-PA/RE/11	Develop guidance material and training programs to create action plans for runway safety teams.	1
RAST-MID/RGS/4	**Promote /monitor Implementation RESA including other means such as arresting systems**	
RAST-AP/RE/5	Promote /monitor Implementation RESA including other means such as arresting systems (where possible)	0
RAST-PA/RE/2	Implementation RESA (Where possible)	7
RAST-PA/RE/3	Implement EMAS (Where possible)	9
RAST-MID/RGS/5	**Timely and accurate notification regarding runway conditions and weather by AIS and ATS units**	
RAST-AP/RE/6	Timely and accurate notification about runway conditions by AIS and ATS	2
RAST-PA/RE/5	Timely notification about runway conditions by AIS add /ATS	4
RAST-MID/RGS/6	**Regulation, guidance and specific training in relation to maintaining aerodrome runway/taxiway related markings**	
RAST-AP/RI/1	Enhanced Surface Marking and Lighting	0
RAST-MID/RGS/7	**Regulation, guidance and specific training in relation to maintaining runways in accordance with Annex 14**	
RAST-AP/RE/10	Specific training for Aerodrome personnel Regarding maintenance and operations of the runway	0
RAST-AP/RE/7	Improve runway conditions in accordance with annex 14	0
RAST-AP/RE/9	Guidance in maintaining runway in accordance with Annex 14	0
RAST-PA/RE/10	Specific training for Aerodrome personnel Regarding maintenance and operations of the runway	2
RAST-PA/RE/6	Improve runway conditions in accordance with annex 14	8
RAST-PA/RE/8	Guidance in maintaining runway in accordance with Annex 14	3

RAST-MID/RGS/8	**Identification of aerodrome Hot Spots and publish Hot Spot data in AIP if necessary**	
RAST-AP/RI/7	Taxiway and Runway Configuration	0
Referred to other Focus Areas		
RAST-AP/RE/4	Promote PBN implementation and Approaches with vertical guidance	0
RAST-PA/RE/1	Stabilized approaches (PBN Implementation)	6
RAST-PA/RE/7	Implement risk management measures taking into consideration the ones contained in ALAR	5

APPENDIX E

PROPOSAL FOR MID-RAST CROSS FOCUS AREA TRAINING TASK FORCE

(Presented by the RGS Coordinator)

SUMMARY

The SEIs from RGS, CFIT, LOC-I and IFD all include top priorities for development of DIPs related to training and/or adherence to SOPs.

To eliminate duplication of effort; ensure a standard approach toward pilot, ATC and aerodrome training and adherence to SOP; and effective use of time and resources, it is proposed that RASG-MID/02 endorse the creation of a Cross-Focus Area Task Force.

Task Force purposes:

- coordination of training across various risk areas to a single audience; and
- review of existing support from companies, States and ICAO through appropriate policy/training, regulation/guidance and standards/recommendations.

— — — — — — — — — — —

A) **Purpose of the Task Force - Training:**

Coordinate joint training and educational initiatives such as seminars and workshops in respect to the following SEIs at a minimum:

	Pilots	**ATC**	**Aero-drome**
a) **Runway Excursion (RE):** 1. MID-RAST/RGS/01: - **Promote pilot adherence to Standard Operating Procedures** (SOPs) for approaches including go-around decision-making.	**X**		
2. MID-RAST/RGS/02: **Specific training for pilots and air traffic controllers** to avoid unstabilized approaches.	**X**	**X**	
3. MID-RAST/RGS/06 and MID-RAST/RGS/07: Regulation, guidance and **specific training in relation to maintaining aerodrome runway/taxiway related markings** and regulation, guidance and **specific training in relation maintaining runways** in accordance with Annex 14.			**X**
4. MID-RAST/RGS/03: Develop guidance material and **training programs to create action plans for runway safety teams**.		**X**	**X**

	Pilots	ATC	Aero-drome
b) **Controlled Flight into Terrain (CFIT):**			
1. MID-RAST/CFIT/01: Specific **Approach and Landing Accident Reduction (ALAR/CFIT) training for pilots**.	**X**		
2. MID-RAST/CFIT/02: **Crew Resource Management (CRM) for pilots and air traffic controllers**.	**X**	**X**	
c) **Loss of Control In-Flight (LOC-I):**			
1. MID-RAST/LOC-I/1: **Pilots will be better trained** to avoid and recover from excursions from normal flight and loss of control.	**X**		
2. MID-RAST/LOC-I/2: To improve the overall performance of **flight crews to recognize and prevent loss** of control accidents, through effective use of automation..	**X**		

d) **In-Flight Damage**			
1. MID-RAST/IFD/01: **Promote SOP Adherence**/SOP Cross--Verification	**X**		
2. MID-RAST/IFD/04: **Increase awareness on means and tools** of handling situations where a natural disaster occurs	**X**		

B) **Purpose of the Task Force – Support for Safety Risk Focus Areas (Company/State/ICAO):**

A starting point to progress the SEIs regarding training and adherence to SOPs may be to validate the following:

a. **Operator**
- Training and SOPs include required elements
- Sufficient training (recurrence/content)
- Operator culture

b. **States**
- State regulation/guidance to support the development of adequate training and SOPs
- State oversight/guidance in these areas
- Application of SMS principles
- Existing regulation/guidance in accordance with relevant ICAO SARPs

c. **ICAO**

- Consider if ICAO SARPs reflect best practice safety practices regarding pilot training and adherence to SOPs

C) The activities of the Task Force are in support of the following Safety Risk Focus Areas (FAs):

I. Runway and Ground Safety (RGS);
II. Loss of Control In-Flight (LOC-I);
III. In-Flight Damage (IFD); and
IV. Controlled Flight Into Terrain (CFIT).

D) Membership

I. MID-RAST Focus Area Coordinators
II. ICAO-MID
III. IATA
IV. FSF
V. IFALPA
VI. CANSO
VII. IFATCA
VIII. Other

-END-