International Civil Aviation Organization
Third Meeting of the Regional Aviation Safety Group - Pan America (RASG-PA/03)
(Punta Cana, Dominican Republic, 27-29 October 2010)

Agenda Item 3: RASG-PA Regional Aviation Safety Team - Pan America (RAST-PA) Report

REGIONAL AVIATION SAFETY TEAM – PAN AMERICA (RAST-PA) REPORT

(Presented by the Secretariat)

SUMMARY

This paper describes the establishment of achievable projects based on prioritized mitigation measures with well defined deliverables (including metrics to assess the effectiveness of the proposed mitigation actions) and clear timeframes develop by the Regional Aviation Safety Team – Pan America (RAST-PA) in the form of Detailed Implementation Plans (DIPs).

Action by the RASG-PA is in paragraph 4.

References:

- *Resolution A 36-7 of the 36th Session of ICAO Assembly;*
- *Declaration of the Conference of Directors General of Civil Aviation on a Global Safety Strategy (Montreal, Canada, March 2006);*
- *ICAO Global Aviation Safety Plan (GASP);*
- *ISSG Global Aviation Safety Roadmap (GASR);*
- *RASG-PA/02 Meeting Report (Bogota, Colombia, 3 to 6 November 2009).*

Strategic Objectives	*This working paper is related to Strategic Objective **A**.*

1. Introduction

1.1 During the RASG-PA/02 Meeting, in Bogota, Colombia, November 2009, in accordance with Decision RASG-PA/02/4, the Regional Aviation Safety Team – Pan America (RAST-PA) was established to analyze safety risks using the Global Aviation Safety Roadmap process. The team has held two meetings, the initial meeting was in Mexico City, Mexico, February 2010, and the second in Miami, United States, April 2010. In addition RAST has held more than ten teleconferences to accomplish its work programme.

2. Activities

2.1 Using the Global Aviation Safety Roadmap (GASR) process and the three main data-driven risk areas identified by the RASG-PA (Runway Excursion/RE, Controlled Flight into Terrain/CFIT and Loss of Control In-Flight/LOC-I), the RAST-PA prepared safety enhancement mitigating actions for each risk area in Pan America. Each safety enhancement initiatives has been identified by a reference number and categorized by GSI, safety impact, changeability, indicator, time frame to accomplish, in addition to identifying a champion and available references.

2.2 The RAST-PA submitted the following safety enhancement initiatives (seven total) to the RASG-PA Executive Steering Committee (ESC) and was granted approval to begin creating Detailed Implementation Plans (DIPs) for the following RASG-PA identified data-driven risk areas:

a) Runway Excursion (RE):
- RAST-PA/RE/4: Promote the adherence of pilots to Standard Operating Procedures (SOPs) for approach procedures including go-around decision making process; and
- RAST-PA/RE/9: Specific training for pilots and air traffic controllers to avoid unstabilized approaches.

b) Controlled Flight into Terrain (CFIT):
- RAST-PA/CFIT/02: Specific Approach and Landing Accident Reduction (ALAR/CFIT) training for pilots; and
- RAST-PA/CFIT/04: Crew Resource Management (CRM)/Situational Awareness specific training for pilots and air traffic controllers.

c) Loss of Control In-Flight (LOC-I):
- RAST-PA/LOC-I/6: LOC Training – Human factors and automation
- RAST-PA/LOC-I/7: LOC training – Advanced maneuvers; and
- RAST-PA/LOC-I/9: LOC training – Pilot monitoring policies and procedures for the operator and training program for flight crews.

2.3 The current list of RAST-PA participants is contained in **Appendix A**.

2.4 DIPs have been created for all ESC approved safety enhancement initiatives, which also included approval to begin implementation for these initiatives by their specific champion. (see **Appendix B**).

2.5 Additionally, **Appendix C** contains the chronological report based on different outputs for each of the DIPs and **Appendix D** contains the complete list of safety enhancement initiatives for which DIPs will be created.

3. Conclusion

3.1 Time frames to conduct implementation tasks have been determined based on priority and available economic resources.

3.2 In order to ensure the success of this initiative, all Stakeholders are asked to actively participate in RAST-PA activities.

3.3 RAST-PA is working with DIP Champions to provide support and has scheduled follow up teleconferences monthly to monitor implementation progress. In addition, RAST-PA will continue to prepare DIPs for all Safety Enhancement Initiatives identified.

3.4 It is envisaged that at least one meeting in South America will be organized next year.

4. Action by the Meeting

4.1 The Meeting is invited to consider adopting the following draft conclusion:

DRAFT
CONCLUSION RASG-PA/3/xx SUPPORT TO RAST-PA ACTIVITIES

That RASG-PA:

a) review the list of participants in Appendix A and identify additional stakeholder representatives that need to be included;

b) note the detailed implementation plans and time lines in Appendices B and C; and

c) suggest future activities for RAST-PA, taking into considering the scope of RAST-PA objectives and resource requirements and limitations.

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ESC Approved Detailed Implementation Plans (DIPs)

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/LOC-I/6	LOC Training - Human factors and automation	SE 30	9	**High**	Moderate	P2	3	**Short**

Safety Enhancement Action (expanded):
To improve the overall performance of flight crews to recognize and prevent loss of control accidents, through effective use of automation.

Statement of Work:
To reduce loss of control accidents, operators will be encouraged to adopt consensus policies and procedures relating to mode awareness and energy state management aspects of flight deck automation, as appropriate to their respective operations.

Champion Organization:
RASG-PA (RAST-PA)

Human Resource:
IATA, Pilot Associations; Safety, Flight Operations and Training managers; ICAO, CAA's, aircraft manufacturers, training centers.

Financial Resource:
The total estimated cost would be X person-years.

Relation Current Aviation Community Initiative:
The following are some of the activities related to this project:

•Incident data has shown that flight deck automation is a core issue that needs to be addressed. To enhance safety, a CAST working group, including aircraft manufactures, pilot associations, etc. developed a tactical approach and distributed policies and procedures relating to mode awareness and energy state management. The COSCAP's in Asia used this material to develop a generic advisory circular.

•CAST Flight Deck Automation Working Group has been formed to recommend and prioritize actions to address, for current and projected operational use, the safety and efficiency of modern flight deck systems for flight path management (including energy state management).

•The Human Factors and Pilot Training Group of the ALPA, Air Safety Structure has identified its position regarding CRM and Human Factors with respect to the use of automation.

•SAE G10, Aerospace Behavioral Engineering Technology (ABET) Committee, deals with the philosophies, principles and criteria by which designers, engineers, pilots and behavioral scientists structure systems to achieve maximum human workload compatibility for automation efficiency. The committee has several subcommittees with on-going work into human factors and automation

Performance Goal Indicators:
Goal 1: Mitigate the effects of mode confusion and energy state management as contributing factors in loss of control accidents.
Indicator: A measurable reduction of loss of control incidents and accidents related to automation.

Goal 2: Mode awareness and energy state management aspects of flight deck automation advisory circular is readily available.
Indicator: Each ICAO contracting State in the region has issued an advisory circular and distributed it to each operator's in the State. Completion of Output 3.

Goal 3: All operators incorporate mode awareness and energy state management aspects of flight deck automation guidance in their approved training programs.
Indicator: Mode awareness and energy state management aspects of flight deck automation guidance is provided to all transport airplane pilots Completion of Output 4.

Key Milestones:
The following milestones are based on the date of Steering Committee Approval (SCA) (months):
•Review Asian advisory circular IATA SCA+6
•Issue generic advisory circular ICAO Output 1 +1
•Issuance of advisory circular by States in the Region. CAAs Output 2 +6
•Operators develop guidance based on the AC and train pilots. Operators Output 3 + 18
•Track Implementation RASG-PA SCA +12 and yearly

Potential Blockers:
•Operator might not embrace advisory circular material,
•Operators might not accept the potential cost of this training,
•Operators may not recognize the safety enhancement benefits,
•States may opt not to adopt and issue the advisory circular.

DIP Notes:

To reduce loss of control accidents, air carriers will be encouraged to adopt consensus policies and procedures relating to mode awareness and energy state management, as appropriate to their respective operations.

RAST-PA/LOC-I/6 Output 1

Description: Review and evaluate the advisory circular created by the ICAO COSCAP's in Asia

•ALTA / IFALPA / IATA team to review and evaluate the advisory circular created by the ICAO COSCAP's in Asia related to mode awareness and energy state management of flight deck automation.
•Based on this review create a generic advisory circular for the Region

Resources:

Resource Notes: ALTA, IFALPA, IATA, Pilot Associations, Flight Operations, Safety and Training managers, and Aircraft Manufacturers. The estimated cost of a one day meeting of the appropriate persons.

Time Line: SCA + 6 months

Actions: ALTA / IFALPA / IATA will convene a team to analyze the advisory circular, to verify policies and procedures related to mode awareness and energy state management are appropriate for the Region. The team will develop a generic mode awareness and energy state management aspects of flight deck automation advisory circular for Pan America.

Target Completion Date:

RAST-PA/LOC-I/6 Output 2

Description: •ICAO will distribute a copy of the developed generic advisory circular to each State in the Region.

Resources:

Resource Notes: ICAO

Time Line: Completion of Output 1 + 1 months

Actions: ICAO Regional Offices will prepare a cover letter and disseminate the generic advisory circular to each member State in the Region.

Target Completion Date:

RAST-PA/LOC-I/6 Output 3

Description: •Each State in the region will use the generic advisory circular as a template to prepare a State advisory circular on mode awareness and energy state management aspects of flight deck automation.

Resources:

Resource Notes: State regulatory authorities

Time Line: Completion of output 2 + 6 months

Actions: States in the Region to issue their own advisory circular on mode awareness and energy state management aspects of flight deck automation.

Target Completion Date:

RAST-PA/LOC-I/6 Output 4

Description: Mode awareness and energy state management aspects of flight deck automation guidance is provided by operators to all of their pilots.

Resources:

Resource Notes: Operator's flight operations, standards and training departments.

Time Line: Completion of Output 3 + 18 months

Actions: Each operator should carefully developed procedures and guidelines that support the proper use of mode awareness and energy state management aspects of flight deck automation in their training programs. Each transport airplane pilot should be trained to the flight deck automation procedures and guidelines developed by their organization.

Target Completion Date:

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/LOC-I/7	LOC Training - Advanced maneuvers	SE 31	9	High	Moderate	P2	1	Short

Safety Enhancement Action (expanded):
Promote LOC Training – Advanced maneuvers
Pilots will be better trained to avoid and recover from excursions from normal flight and loss of control.

Statement of Work:
Advanced Maneuvers Training (AMT) focuses on training to prevent and recover from hazardous flight conditions outside of the normal flight envelope, such as, inflight upsets, stalls, ground proximity and wind shear escape maneuvers, and inappropriate energy state management conditions. There has been a recent increase in accidents where loss of control was a contributing factor.

The purpose of this project is to collect and provide advanced maneuver training material and to encourage operators to use these materials to implement advanced maneuver ground training and flight training using appropriate flight training equipment. Emphasis should be given to stall onset recognition and recovery, unusual attitudes, upset recoveries, effects of icing, energy awareness and management, and causal factors that can lead to loss of control

Champion Organization:
ALTA

Human Resource:
Airline Associations, Pilot Associations; Safety, Flight Operations, and Training managers, aircraft manufacturers, ICAO, flight simulation device manufacturers, training centers, existing training aids, and new materials developed by manufacturers.

Financial Resource:
The total cost associated with this project would be determined by the number of crew personnel that need to be trained and the amount of training time required. This initiative is considered essential for flight safety, there would be no cost associated with the devel

Relation Current Aviation Community Initiative:
- Voluntary training currently being done – both ground and flight
- Wind shear training required since 1988
- Airplane Upset Recovery Training Aid
- Commercial training products becoming available

Performance Goal Indicators:
Goal 1: Develop and make available AMT material for operators approved training programs
Indicator: Availability of the AMT material within 8 months of SCA.

Goal 2: All operators incorporate AMT in their approved training programs.
Indicator: Operators incorporate AMT material within 36 months of SCA.

Goal 3: Reduce occurrence of LOC accidents.
Indicator: A measurable reduction of loss of control incidents and accidents related to excursion from normal flight.

Key Milestones:
The following milestones are based on the date of Steering Committee Approval (SCA) (months):
- Distribute currently available Training Aids ALTA SCA +8
- Track adoption of AMT ALTA SCA +8
- Track Implementation SCA+8 and on a yearly basis

Potential Blockers:
- Some special interests might discredit AMT simulator training
- Operators might ignore AMT materials
- Operators might not accept the potential cost of this training
- Operators may not recognize the safety enhancement benefits

DIP Notes:

Advanced Maneuvers Training (AMT) refers to training to prevent and recover from hazardous flight conditions outside of the normal flight envelope. Examples include in-flight upsets, stalls, ground proximity and wind shear escape maneuvers, and inappropriate energy state management conditions. This safety enhancement collects and provides advanced maneuver training material and encourages operators to use these materials to implement advanced maneuver ground and flight training using appropriate flight training equipment. Emphasis should be given to stall onset recognition and recovery, unusual attitudes, upset recoveries, effects of icing, energy awareness and management, and causal factors that can lead to loss of control.

RAST-PA/LOC-I/7 Output 1

Description: Listing of training materials available from regulators, industry, operators, academia and other resources.

Resources:

Resource Notes: RAST-PA Secretariat (NACC office) will produce a comprehensive list, with input from all RAST-PA members.
All aircraft manufacturers should provide a list of available training materials and aids.
FAA Airplane Upset Recovery Training Aid: is available on its public web site.

Time Line: SCA+ 6 months

Actions: RAST-PA should distribute the Airplane Upset Recovery Training Aid to all appropriate regional stakeholders.

Target Completion Date:

RAST-PA/LOC-I/7 Output 2

Description: Advanced Maneuvers Training provided to all operators.

Resources: 10000

Resource Notes: Estimated distribution costs in USD.
ALTA, IATA

Time Line: Output 1 Complete + 6 months

Actions: ALTA should provide the training materials to each operator in the region. IATA should support ALTA's initiative. ALTA should report the level of commitment by the operator's flight operations and training departments.

Target Completion Date:

RAST-PA/LOC-I/7 Output 3

Description: Advanced Maneuvers Training provided by all operators. The expectation is that this training will be accomplished during initial training and as part of the recurrent training program, via ground and simulator instruction within the certified flight envelope, with emphasis on recognition, prevention and recovery techniques.

Resources:

Resource Notes: Costs may vary from operator to operator and would need to consider;
1) Revising the training program for AMT.
2) Assessing the simulator time allotted on the initial and recurrent syllabuses to accommodate AMT.
3) It is estimated that AMT training would require 30 minutes or less of simulator time.

Time Line: Output 2 Complete + 28 months

Actions: ALTA and IATA should promote a high level of commitment to advanced maneuvers training (AMT) by operator flight operations and training departments. Advanced maneuvers training will be conducted emphasizing energy state management and early recognition and recovery from flight outside the certified aircraft-operating envelope.Flight conditions outside of the certified flight envelope include inflight upsets, stalls, ground proximity and wind shear escape maneuvers, and inappropriate energy state management conditions. The training will be accomplished via ground and simulator instruction within the certified flight envelope, with emphasis on recognition, prevention and recovery techniques. The simulator instruction will be within the limitation of the training device being utilized.

Target Completion Date:

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/LOC-I/9	LOC Training - Pilot monitoring policies and procedure for the operator and training program for crews.		9	High	Easy	P1	2	Short

Safety Enhancement Action (expanded):
Promote Pilot Monitoring Techniques and Training. Monitoring performance can be significantly improved by training these skills

Statement of Work:
The purpose of this project is to collect and provide pilot monitoring training material and to encourage operators to use these materials to implement pilot monitoring training and flight procedures.

Inadequate flight crew monitoring has been cited by a number of sources as a problem for aviation safety. A collaborative research effort by NASA-Ames, 21 worldwide airlines and the University of Texas Human Factors Research Program, which observed more than 2,000 airline flights, noted that roughly 62 percent of unintentional errors went undetected by flight crews. In addition, the Flight Safety Foundation, ALAR working group, has established that poor monitoring has been a factor in 63 percent of approach and landing accidents. ICAO has also determined that 50 percent of CFIT accidents had pilot monitoring as a common factor.

The term 'Pilot Monitoring' (PM) should be used as an alternative to 'Pilot Not Flying' (PNF) since it reflects clearly the most important function of a PNF.

Conventionally, when two pilots fly a fixed-wing airplane the aircraft commander occupies the left hand seat, and the co-pilot or first officer occupies the right hand seat. Before the commencement of each flight leg, the aircraft commander decides which pilot will take direct responsibility for flying the aircraft and they become 'Pilot Flying' (PF) for that leg. The other pilot is then 'Pilot Not Flying' (PNF) and carries out supporting duties such as communications and check-list reading. Currently some operators use alternative terms for PF and PNF.

Several major airlines have recently revised their procedures to maximize the monitoring of aircraft trajectory, automation and systems. They have tried to minimize or eliminate concurrent procedures that conflict with crew monitoring.

Champion Organization:
IFALPA

Human Resource:
Pilot Associations, IATA, ALTA, ICAO, Flight Operations, and Training managers, training centers, existing training aids.

The total cost associated with this project would be determined by the number of flight crews that need to be trained and the amount of time required. This initiative is considered essential for flight safety.

Estimated 2 meetings of RAST representatives to implement Output 1.

Financial Resource:

Relation Current Aviation Community Initiative:
- Aligns with major findings by ICAO, FSF, NTSB.
- Aligns with components of CRM

Performance Goal Indicators:
Goal 1:Reduce occurrence of LOC accidents.
Indicator: A measurable reduction of loss of control incidents and accidents related to deviations from normal flight.

Goal 2: Pilot Monitoring Training material is readily available.
Indicator: Availability of the Pilot Monitoring Training material in each operator's organization within 2 months of Output 3.

Goal 3: All operators incorporate Pilot Monitoring Training in their approved training programs.
Indicator: Pilot Monitoring Training is provided to all transport airplane pilots. Within 18 months of Output 4.

Key Milestones:
The following milestones are based on the date of Steering Committee Approval (SCA) (months):
- Distribute currently available Training Aids ALTA SCA+5
- Track adoption of Pilot Monitoring Training ALTA SCA+12

Potential Blockers:
- Operators might not accept the potential cost of this training
- Operators may not recognize the safety enhancement benefits

DIP Notes:

Pilot Monitoring policies and procedure for the operator and training program for crews.

RAST-PA/LOC-I/9 Output 1

Description: •Listing of training materials available from industry, operators, and other resources.

Resources:

Resource Notes: RASG-PA Secretariat (NACC office) will produce a comprehensive list.

Time Line: SCA + 3 months

Actions: RASG-PA should distribute the Pilot Monitoring Training Aid to all appropriate regional stakeholders (IATA, ALTA, CAA, etc.).

Target Completion Date:

RAST-PA/LOC-I/9 Output 2

Description: •Raise awareness of availability and need of Pilot Monitoring Training.

Resources:

Resource Notes: IFALPA, Local Pilot Associations

Time Line: Completion of Output 1 + 1 months

Actions: IFALPA, ALTA and local pilot associations should market and promote ongoing activities that develop a higher level of commitment to Pilot Monitoring Training by operator's flight operations, standards and training departments.

Target Completion Date:

RAST-PA/LOC-I/9 Output 3

Description: •Pilot Monitoring Training material provided to all operators.

Resources:

Resource Notes: ALTA, IATA, CAA's

Time Line: Completion of Output 1 + 2 months

Actions: ALTA should provide the training materials to each operator in the region. IATA should support ALTA's initiative. ALTA should report to RASG-PA the level of commitment by the operator's flight operations and training departments.

Target Completion Date:

RAST-PA/LOC-I/9 Output 4

Description: •Pilot Monitoring Training provided by operators to all of their pilots.

Resources:

Resource Notes: Operator's flight operations, standards and training departments, pilot associations.

Time Line: Completion of Output 3 + 18 months

Actions: Each operator should carefully developed procedures and guidelines that support pilot monitoring in their training programs. Each transport airplane pilot should be trained to the Pilot Monitoring procedures and guidelines developed by their organization.

Target Completion Date:

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/RE/04	Promote pilot adherence to Standard Operating Procedures (SOPs) for approach procedures including go- around decision making process.		9	High	Easy	P1	1	Short

Safety Enhancement Action (expanded): Promoting pilot adherence to Standard Operating Procedures (SOPs) which would include stabilized approach criteria and go/no go take-off decision making procedures is key to preventing and reducing the risk of runway excursions. Reviewing existing operational policies, procedures and programs is also part of an overall strategy in mitigating runway excursion risk.

Statement of Work: Runway Excursion has been identified as the highest safety risk area in Pan America. In order to proactively reduce this risk, RASG-PA chartered the Regional Aviation Safety Team (RAST) to review runway excursion information and develop mitigation strategies to reduce this risk.

Champion Organization: ALTA

Human Resource: ICAO (NACC, SAM, HQ), IATA, ALTA, ACSA, FSF, CANSO, aircraft manufacturers, ALPA, IFALPA, IFATCA, CAA's, and other stakeholders.

Financial Resource: 10000

Relation Current Aviation Community Initiative: IATA Runway Excursion Risk Reduction toolkit/FSF: ALAR toolkit (version June 2010)
Colegio de Pilotos Aviadores de México: Aeronautical Decision Management Training

Performance Goal Indicators:

Goal 1: target audience(s): Latin America and Caribbean, will value the information provided
(1) Objective: educate the target audience(s)
(2) Indicator: to reach 80% of the airlines pilots in the Region
(3) Indicator: to reach 80% of other stakeholders as determined by the research.

Goal 2: increase the awareness on runway excursions
(1) Objective: reduce the number of events
(2) Indicator: reduction of 80% of the events in the region

Key Milestones:

- Authorization by IATA to upload copyright material from RERR Toolkit in RASG-PA website: pending
- Release of State letters from RASG-PA Secretariat recommending establishment of SOPs: SCA+02
- RAST – PA Report from metrics regarding RE/04: Upon completion of Output 2 +03

Potential Blockers:

a)Strategic Challenges
i)Incorporate new audience in addition to airline's pilots
ii)Distribution of training material to airlines
iii)Distribution of training material to non-airline pilots
iv)Establish and maintain communication with the Pan American pilots and other stakeholders
v)Operators to include recommendations into their Manual of Operations
vi)Operators to include recommendations into their training programmes
vii)Get feedback
viii)Metrics to determine penetration of this programme

DIP Notes:

1. Research to determine the target audience(s) Determine the specific groups of pilots to be reached in order to achieve our objective Determine other stakeholders that would benefit.

2. Communication and distribution options: Letter from RASG-PA Secretary to recommend that all operators establish SOP's that include stabilized approach criteria for pilots and a no fault go-around policy for unstable approaches, mentioning the FSF/IATA Runway Excursion Risk Reduction Tool Kit. Letter from RASG-PA Secretary to States recommending that all operators establish SOP's that include stabilized approach criteria for pilots and a no fault go-around policy for unstable approaches, mentioning the FSF/IATA Runway Excursion Risk Reduction Tool Kit.

3. Press releases from ALTA, IATA, IFALPA. 4. RASG-PA website news release, uploading of training material and E-mails to target audience

Keep in mind that there is no contradiction with the pressure for pilots in the subsequent flight analysis.

RAST-PA/RE/04 Output 1

Description: Distribution

Resources:

Resource Notes: Cost of the material and distribution to the operators.

Time Line: SCA+ 6 months

Actions: 1. RAST/RE recommends that all operators establish SOP's that include stabilized approach criteria for pilots and a no fault go-around policy for unstable approaches. 2. In coordination with FSF and IATA, RAST/RE should develop an awareness campaign to promote the adherence to SOP's for approach procedures including the go-around decision making process. The campaign will distribute the FSF/IATA Runway Excursion Risk Reduction Tool Kit, the Colegio de Pilotos Aviadores de Mexico Aeronautical Decision Management training, and any other available material. 3. Time to train trainers

Target Completion Date: 12

RAST-PA/RE/04 Output 2

Description: Training

Resources:

Resource Notes: Variable costs depending on the operator.

Time Line: SCA+ 12 months

Actions: Operators to include material in training programs.

Target Completion Date:

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/RE/09	Specific Training for pilots and air traffic controllers to avoid unstabilized approaches		9	High	Easy	P1	2	Short

Safety Enhancement Action (expanded): Develop safety seminars for pilot and air traffic controllers to mitigate the causes of unstable approaches in Pan America.

Statement of Work: Runway Excursion has been identified as one of the highest safety risk area in Pan America. In order to proactively reduce this risk, RAST in collaboration with ALTA will develop safety seminars for pilots and controllers that will provide specific training and tools to mitigate the causes of unstable approaches.

Champion Organization: ALTA

Human Resource: IATA, ATA, ATAC, ACSA, aircraft manufacturers, IFALPA, IFATCA, flight data analysis companies (Sagem, ADI, Airface, ect.), organizations, CANSO, local pilot and air traffic controller associations, flight academies, training centers and other stakeholders.

Financial Resource: Costs would be shared by the operators, manufacturers, pilot associations and governments.

Relation Current Aviation Community Initiative: - Runway Safety Action Teams (RSAT); local equivalent collaborative teams in Pan America.

Performance Goal Indicators: Goal: reduce occurrence of runway excursion accidents.
Indicator: a measurable reduction of runway excursion incidents and accidents.

Key Milestones: The following milestones are based on the date of SCA approval (months):
- Survey SCA + 6
- Reports SCA + 9
- Seminars SCA + 12

Potential Blockers:
- Insufficient funds to conduct seminars
- Inadequate implementation of recommendations from outputs
- Lack of participation from industry
- Lack of human resources, specialists, facilitators
- Language barriers
- Obtaining copyright approval for available training material
- Political barriers
- Data sharing restrictions
- Time availability

DIP Notes: Impact on Aviation Safety in the Region:
This project would have a positive impact on aviation by avoiding accidents and incidents related to runway excursion.

Pressure to controllers and pilots (efficiency, 0 tolerance for unstabilized approahces). Training focused on risk management

RAST-PA/RE/09 Output 1

Description: RAST in collaboration with ALTA will develop a strategy to deliver safety seminars for pilots and controllers in Pan America that targets recognition and avoidance of unstable approaches.

Resources:

Resource Notes: Stakeholders as listed above

Time Line: SCA 24 months

Actions: RAST in collaboration with ALTA develop a strategy and timeline to develop safety seminars for pilots and controllers.

At a minimum the following topics should be covered:
- Stabilized Approaches
- Go Around Gates and Missed Approach Criteria
- Approach Procedures and Briefings
- Non Normal Aircraft Conditions
- Transfer of Aircraft Control
- CRM/TRM and human factors
- Weather conditions and information dissemination

During the safety seminars participant will be asked to provide additional mitigation measures that will be compiled and used as the basis of future safety enhancements for runway exercusions.

Target Completion Date:

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/CFIT/02	Specific ALAR/CFIT Training for Pilots	SE-12, ALAR Toolkit, FSF CFIT Training	9	Medium	Moderate	P5	1	Short

Safety Enhancement Action (expanded): Promote specific ALAR/CFIT prevention training and procedures to be included in operators approved training curriculums, emphasizing pilot situational awareness and escape procedures for flight crews to use in the event of a terrain warning indication.

Statement of Work: Controlled Flight Into Terrain (CFIT) has been identified as one of the top three data driven risk areas in Pan-America. CFIT is a significant cause of commercial aviation equipment loss and fatalities, worldwide. CFIT accidents could be substantially reduced if all operators and training centers in Pan America developed CFIT prevention procedures and add them to their approved initial and recurrent training curriculums.

Champion Organization: IATA

Human Resource: CAA's, ICAO, IATA, ATA, ALTA and industry partners.

Financial Resource:

Relation Current Aviation Community Initiative:
- RASG-PA has identified CFIT as the number two flight safety risk area in Pan America.
- Flight Safety Foundation (FSF) has recently updated (April 2010) the ALAR Toolkit that includes CFIT Education and Training.

Performance Goal Indicators:
Goal 1: A reduction of 80% in ten years of CFIT accidents involving operators in Pan America.
Indicator: Operator CFIT accident rate in Pan America is continuously reduced toward the goal.

Goal 2: CFIT training and guidance material will be provided to all operators and training centers not conducting CFIT training.
Indicator: All operators and training centers are conducting CFIT training.

Goal 3: Post CFIT Education and Training Guidance Material on the RASG-PA Website. Indicator: CFIT training material posted on the RASG-PA Website prior to completion of Output 1.

Key Milestones:
- CAA's conduct a review of all operators CFIT training programs SCA + 6 months
- CFIT Education and Training Guidance Material Available on the Web. SCA + 2 months
- Operators and training centers will incorporate CFIT training into their training programs. SCA + 12 months

Potential Blockers:
- Availability of CAA resources.
- Operators may not recognize the safety enhancement benefits

DIP Notes:

RAST-PA/CFIT/02 Output 1

Description: CAA's conduct a review of all operators to ascertain which operators have CFIT prevention training and procedures in their approved training programs.

Resources:

Resource Notes: CAA (Flight Safety Oversight Department)
Estimate of 2 to 4 CAA man-hours per airline to complete operator review
CAA Inspector review checklist

Time Line: SCA+ 6 months

Actions: Through the flight safety oversight departments, CAA's will direct inspectors to conduct a review of their operator and identify which operators provide CFIT prevention training and procedures within their approved training programs.

Target Completion Date:

RAST-PA/CFIT/02 Output 2

Description: If an operator does not have CFIT training, he will be encouraged to incorporate CFIT training into the airline training program.

Resources:

Resource Notes: Operators, CAA's and ICAO
Variable cost depending on the operator and the number of pilots

Time Line: SCA+ 12 months

Actions: Operators will incorporate CFIT prevention training and procedures into their training programs.

Target Completion Date:

Rast No	Safety Enhancement Action	Reference:	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/CFIT/04	CRM/Situational Awareness for pilots and air traffic controllers (To include review of actual events when possible)	SE -11, SE-46, SE-47	12	Medium	Moderate	P5	2	Medium

Safety Enhancement Action (expanded): Include specific CRM/situational awareness training and procedures to all pilots and air traffic controller training curriculums, emphasizing pilot and controller situational awareness with respect to CFIT.

Statement of Work: Crew Resource Management/Controller Resource Management (CRM) training, situational awareness and CFIT prevention are closely linked. This project will reduce CFIT accidents by promoting comprehensive pilot and air traffic controller CRM training programs.

Champion Organization: IFALPA/IFATCA

Human Resource: CAA's, ICAO, ANSP's, IFALPA, IFATCA, IATA and industry partners.

Financial Resource:

Relation Current Aviation Community Initiative:
- RASG-PA website (http://www.mexico.icao.int/RASGPA.html#TrainingRefs)
- FSF virtual library (http://flightsafety.org/)
- ALAR Briefing Note – Crew Resource Management (http://flightsafety.org/files/alar_bn2-2-crm.pdf)
- Airbus (http://www.airbus.com/en/corporate/ethics/safety_lib/)
- Boeing operators (www.myboeing.com)

Performance Goal Indicators:
Goal 1: A substantial reduction of CFIT accidents involving air transport operators in Pan America.
Indicator: Operator CFIT accident rate in Pan America decreases by 80%.

Goal 2: CRM/situational awareness training and guidance material provided to all air transport operators and Air Traffic Personnel.
Indicator: Increase in number of operators and Air Traffic Personnel that are conducting CRM/situational awareness training.

Goal 3: Post the CRM/situational awareness guidance material on the RASG-PA Website.
Indicator: CRM/situational awareness guidance material posted on the RASG-PA Website by the time of SCA +2 months.

Key Milestones:
- CRM/situational awareness training and guidance material available on the Web. SCA +2 months
- Operators will incorporate CFIT training into their training program. SCA +18 months
- ANSP will incorporate CFIT training into their training program. SCA+ 24 months

Potential Blockers:
- Availability of CAA/ANSP/State resources.
- Operators, States and ANSP may not recognize the safety benefits

DIP Notes: All communications to States should be conducted through the RASG-PA Secretariat. Guidance on coordinating with ICAO and identifying which operators and ANSPs are providing CFIT prevention training and procedures within their approved training programs may be useful to States.

ATC training in this area has already been developed

RAST-PA/CFIT/04 Output 1

Description: Incorporate and/or update CRM/situational awareness training programs for all flight crew members of air transport operators emphasizing aircraft position with relation to terrain and reviewing past occurrences.

Resources:

Resource Notes: Air transport operators (training departments),
Variable cost depending on the operation

Time Line: SCA+ 18 months

Actions: Reduce the CFIT accident rate by incorporating CFIT prevention in CRM training programs. Situational awareness will be emphasized as an integral part of the CRM training required of flight crewmembers of all air transport operators.

Target Completion Date:

RAST-PA/CFIT/04 Output 2

Description: Incorporate CRM/situational awareness training programs for all air traffic controllers of air navigation service providers (ANSP) emphasizing aircraft position with relation to minimum allowable altitudes.

Resources:

Resource Notes: ANSP's (training departments),
CRM/situational awareness guidance material posted on the RASG-PA Website
Variable cost depending on the ANSP

Time Line: SCA+ 24 months

Actions: Reduce the CFIT accident rate by incorporating CFIT prevention in CRM training programs. Situational awareness will be emphasized as an integral part of the CRM training required of air traffic controllers of all ANSPs.

Target Completion Date:

RAST-PA DIP Follow-up

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Due Date	Champion	DIP No.	Output	Description	Actions	Time line
20-Nov-10	IFALPA	RAST-PA/LOC-I/9	1	•Listing of training materials available from industry, operators, and other resources.	RASG-PA should distribute the Pilot Monitoring Training Aid to all appropriate regional stakeholders (IATA, ALTA, CAA, etc.).	ESC/6 +3
20-Dec-10	IFALPA	RAST-PA/LOC-I/9	2	•Raise awareness of availability and need of Pilot Monitoring Training.	IFALPA, ALTA and local pilot associations should market and promote ongoing activities that develop a higher level of commitment to Pilot Monitoring Training by operator's flight operations, standards and training departments.	LOC-I/9 - O1 +1
20-Jan-11	IFALPA	RAST-PA/LOC-I/9	3	•Pilot Monitoring Training material provided to all operators.	ALTA should provide the training materials to each operator in the region. IATA should support ALTA's initiative. ALTA should report to RASG-PA the level of commitment by the operator's flight operations and training departments.	LOC-I/9 - O1 +2
20-Feb-11	RASG-PA (RAST-PA)	RAST-PA/LOC-I/6	1	Review and evaluate the advisory circular created by the ICAO COSCAP's in Asia •ALTA / IFALPA / IATA team to review and evaluate the advisory circular created by the ICAO COSCAP's in Asia related to mode awareness and energy state management of flight deck automation. •Based on this review create a generic advisory circular for the Region	ALTA / IFALPA / IATA will convene a team to analyze the advisory circular, to verify policies and procedures related to mode awareness and energy state management are appropriate for the Region. The team will develop a generic mode awareness and energy state management aspects of flight deck automation advisory circular for Pan America.	ESC/6 +6
20-Feb-11	IATA	RAST-PA/CFIT/02	1	CAA's conduct a review of all operators to ascertain which operators have CFIT prevention training and procedures in their approved training programs.	Through the flight safety oversight departments, CAA's will direct inspectors to conduct a review of their operator and identify which operators provide CFIT prevention training and procedures within their approved training programs.	ESC/6 +6
20-Feb-11	ALTA	RAST-PA/LOC-I/7	1	Listing of training materials available from regulators, industry, operators, academia and other resources.	RAST-PA should distribute the Airplane Upset Recovery Training Aid to all appropriate regional stakeholders.	ESC/6 +6
20-Feb-11	ALTA	RAST-PA/RE/04	1	Distribution	1. RAST/RE recommends that all operators establish SOP's that include stabilized approach criteria for pilots and a no fault go-around policy for unstable approaches. 2. In coordination with FSF and IATA, RAST/RE should develop an awareness campaign to promote the adherence to SOP's for approach procedures including the go-around decision making process. The campaign will distribute the FSF/IATA Runway Excursion Risk Reduction Tool Kit, the Colegio de Pilotos Aviadores de Mexico Aeronautical Decision Management training, and any other available material. 3. Time to train trainers	ESC/6 +6

Due Date	Champion	DIP No.	Output	Description	Actions	Time line
20-Mar-11	RASG-PA (RAST-PA)	RAST-PA/LOC-I/6	2	•ICAO will distribute a copy of the developed generic advisory circular to each State in the Region.	ICAO Regional Offices will prepare a cover letter and disseminate the generic advisory circular to each member State in the Region.	LOC-I/6 - O1 +1
20-Aug-11	ALTA	RAST-PA/RE/04	2	Training	Operators to include material in training programs.	ESC/6 +12
20-Aug-11	IATA	RAST-PA/CFIT/02	2	If an operator does not have CFIT training, he will be encouraged to incorporate CFIT training into the airline training program.	Operators will incorporate CFIT prevention training and procedures into their training programs.	ESC/6 +12
20-Aug-11	ALTA	RAST-PA/LOC-I/7	2	Advanced Maneuvers Training provided to all operators.	ALTA should provide the training materials to each operator in the region. IATA should support ALTA's initiative. ALTA should report the level of commitment by the operator's flight operations and training departments.	LOC-I/7 - O1 +6
20-Sep-11	RASG-PA (RAST-PA)	RAST-PA/LOC-I/6	3	•Each State in the region will use the generic advisory circular as a template to prepare a State advisory circular on mode awareness and energy state management aspects of flight deck automation.	States in the Region to issue their own advisory circular on mode awareness and energy state management aspects of flight deck automation.	LOC-I/6 - O2 +6
20-Feb-12	IFALPA/IFATCA	RAST-PA/CFIT/04	1	Incorporate and/or update CRM/situational awareness training programs for all flight crew members of air transport operators emphasizing aircraft position with relation to terrain and reviewing past occurrences.	Reduce the CFIT accident rate by incorporating CFIT prevention in CRM training programs. Situational awareness will be emphasized as an integral part of the CRM training required of flight crewmembers of all air transport operators.	ESC/6 +18
20-Aug-12	ALTA	RAST-PA/RE/09	1	RAST in collaboration with ALTA will develop a strategy to deliver safety seminars for pilots and controllers in Pan America that targets recognition and avoidance of unstable approaches.	RAST in collaboration with ALTA develop a strategy and timeline to develop safety seminars for pilots and controllers. At a minimum the following topics should be covered: • Stabilized Approaches • Go Around Gates and Missed Approach Criteria • Approach Procedures and Briefings • Non Normal Aircraft Conditions • Transfer of Aircraft Control • CRM/TRM and human factors • Weather conditions and information dissemination During the safety seminars participant will be asked to provide additional mitigation measures that will be compiled and used as the basis of future safety enhancements for runway exercusions.	ESC/6 +24
20-Aug-12	IFALPA	RAST-PA/LOC-I/9	4	•Pilot Monitoring Training provided by operators to all of their pilots.	Each operator should carefully developed procedures and guidelines that support pilot monitoring in their training programs. Each transport airplane pilot should be trained to the Pilot Monitoring procedures and guidelines developed by their organization.	LOC-I/9 - O3 +18

Due Date	Champion	DIP No.	Output	Description	Actions	Time line	
20-Aug-12	IFALPA/IFATCA	RAST-PA/CFIT/04	2	Incorporate CRM/situational awareness training programs for all air traffic controllers of air navigation service providers (ANSP) emphasizing aircraft position with relation to minimum allowable altitudes.	Reduce the CFIT accident rate by incorporating CFIT prevention in CRM training programs. Situational awareness will be emphasized as an integral part of the CRM training required of air traffic controllers of all ANSPs.	ESC/6	+24
20-Feb-13	RASG-PA (RAST-PA)	RAST-PA/LOC-I/6	4	Mode awareness and energy state management aspects of flight deck automation guidance is provided by operators to all of their pilots.	Each operator should carefully developed procedures and guidelines that support the proper use of mode awareness and energy state management aspects of flight deck automation in their training programs. Each transport airplane pilot should be trained to the flight deck automation procedures and guidelines developed by their organization.	LOC-I/6 - O3	+18
20-Dec-13	ALTA	RAST-PA/LOC-I/7	3	Advanced Maneuvers Training provided by all operators. The expectation is that this training will be accomplished during initial training and as part of the recurrent training program, via ground and simulator instruction within the certified flight envelope, with emphasis on recognition, prevention and recovery techniques.	ALTA and IATA should promote a high level of commitment to advanced maneuvers training (AMT) by operator flight operations and training departments. Advanced maneuvers training will be conducted emphasizing energy state management and early recognition and recovery from flight outside the certified aircraft-operating envelope.Flight conditions outside of the certified flight envelope include inflight upsets, stalls, ground proximity and wind shear escape maneuvers, and inappropriate energy state management conditions. The training will be accomplished via ground and simulator instruction within the certified flight envelope, with emphasis on recognition, prevention and recovery techniques. The simulator instruction will be within the limitation of the training device being utilized.	LOC-I/7 - O2	+28

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Safety Enhancement Initiatives for Data Driven Risk Areas

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
Runway Excursion											
RAST-PA/RE/4	Promote pilot adherence to Standard Operating Procedures (SOPs) for approach procedures including go- around decision making process.	9		27. LOC Policies and Procedures - Risk Assessments and Management - One Project	High	Easy	P1	1	ALTA	Short	Keep in mind that there is no contradiction with the pressure for pilots in the subsequent flight analysis.
RAST-PA/RE/9	Specific Training for pilots and air traffic controllers to avoid unstabilized approaches	9			High	Easy	P1	2	ACSA	Short	Pressure to controllers and pilots (efficiency, 0 tolerance for unstabilized approahces). Training focused on risk management
RAST-PA/RE/1	Stabilized approaches (PBN Implementation)	12		31. LOC Training - Advanced Maneuvers - Implement Ground and Flight Training (1-3)	High	Difficult	P3	6	ANSP	Long	Focus on vertical guidance
RAST-PA/RE/2	Implementation RESA (Where possible)	12			High	Difficult	P3	7	CAAs	Long	Asessment of physical space and other technical features for deployment. Be aware of audits to come (investment vs. Profitability / This will not prevent runway excursions but reduce the fatalities
RAST-PA/RE/3	Implement EMAS (Where possible)	12		30. LOC Training - Human Factors and Automation - One Project	High	Difficult	P3	9	CAAs	Long	Inclusion of EMAS in ICAO-Annex 14 / This will not prevent runway excursions but reduce the fatalities.

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
RAST-PA/RE/5	Timely notification about runway conditions by AIS add /ATS	1		28. LOC Policies and Procedures - Policies - Process to Inform Personnel/Flight Crew (1)	High	Easy	P1	4	IFATCA	Short	Lack of harmonized process of measuring and informing to get a real assessment. Adhere only to the ICAO form of identificatioin (ICAO standard phraseology). Real reports from ATC, not only based on the report of the previous aircraft.
RAST-PA/RE/6	Improve runway conditions in accordance with Annex 14	1	Annex 14		High	Difficult	P3	8	CAAs	Long	Get from ICAO the USOAP results on the AGA area of the audited States, so the discrepancies can be shown, and helpful for improving runway conditions in a faster way.
RAST-PA/RE/7	Implement risk management measures taking into consideration the ones contained in ALAR	7	Doc 9859 OACI, ALAR took kit	29. LOC Policies and Procedures - Policies - Flight Crew Proficiency Program (2)	High	Easy	P1	5	IFALPA	Short	
RAST-PA/RE/8	Guidance in maintaining runway in accordance with Annex 14 (put this point next to 6)	1	Annex 14, Doc 9137 ICAO	26. LOC Policies and Procedures - SOP - One Project	High	Easy	P1	3	ACI-LAC	Short	
RAST-PA/RE/10	Specific training for aerodrome personnel regarding maintenance and operations of the runway	9			High	Easy	P1	2	ASA	Short	ASA will provide training information

Controlled Flight Into Terrain

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
RAST-PA/CFIT/2	Specific ALAR/CFIT Training for Pilots	9	SE-12, ALAR Toolkit, FSF CFIT Training		Medium	Moderate	P5	1	AIRLINES	Short	
RAST-PA/CFIT/4	CRM/Situational Awareness for pilots and air traffic controllers (To include review of actual events when possible)	12	SE -11, SE-46, SE-47	27. LOC Policies and Procedures - Risk Assessments and Management - One Project	Medium	Moderate	P5	2	IFALPA/IFATCA	Medium	ATC training in this area has already been developed
RAST-PA/CFIT/1	TAWS Implementation (software load to 218 or greater plus GPS)	12	SE-1, SE-120	31. LOC Training - Advanced Maneuvers - Implement Ground and Flight Training (1-3)	High	Difficult	P3	3	ALTA (ICAO)	Long	TAWS is ICAO Standard
RAST-PA/CFIT/3	Fatigue Risk Management Training	9	Transport Canada	30. LOC Training - Human Factors and Automation - One Project	Medium	Moderate	P5	4	IFALPA	Short	ICAO Standard being developed
RAST-PA/CFIT/5	Marketing CFIT Prevention	10		28. LOC Policies and Procedures - Policies - Process to Inform Personnel/Flight Crew (1)	Medium	Easy	P4	5	RASG-PA (States/Airlines)	Short	Visual training aids have high fidelity
RAST-PA/CFIT/6	Review SOPs for Flight Crews (specific to CFIT procedures)	1	SE-2		Low	Easy	P7	6	Airline (Manufacture)	Short	
RAST-PA/CFIT/7	Minimum Safe Altitude Warning System (MSAW)	12	SE-9	29. LOC Policies and Procedures - Policies - Flight Crew Proficiency Program (2)	Medium	Difficult	P6	7	ANSP (States)	Long	Would provide extra layer of safety that would exist outside the cockpit
RAST-PA/CFIT/8	FOQ/FOM and ASAP Programs	402 49	SE-10	26. LOC Policies and Procedures - SOP - One Project	High	Difficult	P3	8	Airline	Long	This can be accomplished by individual airlines without state approval

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
RAST-PA/CFIT/9	ACARS System for ATIS dissemination	12			Low	Difficult	P9	9	Airline (ANSP)	Long	Enable pilots to obtain ATIS information at much longer range than VHF

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
Loss of Control in Flight											
RAST-PA/LOC-I/6	LOC Training – Human factors and automation	9	SE 30		**High**	Moderate	P2	3	ALTA (RAST-PA)	**Short**	To reduce loss of control accidents, air carriers will be encouraged to adopt consensus policies and procedures relating to mode awareness and energy state management, as appropriate to their respective operations.
RAST-PA/LOC-I/7	LOC Training – Advanced maneuvers	9	SE 31		High	Moderate	P2	1	ALTA (RAST-PA, Manufacturers))	Short	Advanced Maneuvers Training (AMT) refers to training to prevent and recover from hazardous flight conditions outside of the normal flight envelope. Examples include in-flight upsets, stalls, ground proximity and wind shear escape maneuvers, and inappropriate energy state management conditions. This safety enhancement collects and provides advanced maneuver training material and encourages operators to use these materials to implement advanced maneuver ground and flight training using appropriate flight training equipment. Emphasis should be given to stall onset recognition and recovery, unusual attitudes, upset recoveries, effects of icing, energy awareness and management, and causal factors that can lead to loss of control.

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
RAST-PA/LOC-I/9	LOC Training - Pilot monitoring policies and procedure for the operator and training program for crews.	9			High	Easy	P1	2	IFALPA	Short	Pilot Monitoring policies and procedure for the operator and training program for crews.
RAST-PA/LOC-I/1	Policies and Procedure to prevent LOC - Enforce clear, concise, and accurate flight crew SOPs	9	SE 26		Medium	Easy	P4	8	ALTA (ICAO)	Medium	OPERATORSThis safety enhancement ensures that all airline operators publish and enforce clear, concise, and accurate flight crew SOPs. These SOPs should include expected procedures during pre/post flight and all phases of flight; i.e., checklists, simulator training, PF/PM duties, transfer of control, automation operation, rushed and/or unstabilized approaches, rejected landings and missed approaches, in-flight pilot icing reporting, and flight crew coordination. Operator instructors and check airmen should ensure these SOPs are trained and enforced in their aircrew proficiency and standardization programs.STATESVerify that Policies and Procedures are in place and actively followed.

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
RAST-PA/LOC-I/2	Policies and Procedure to prevent LOC - Prioritization of safety Information	7	SE 27		Medium	Easy	P4	4	RAST-PA	Short	OPERATORSThis safety enhancement identifies or develops and implements methods for operators, regulators, and manufacturers to prioritize safety-related decisions (SMS related).The project will improve methods of risk assessment for operational issues related to service bulletins, aircraft accident/incident analysis, flight-critical safety information, and recurring intermittent failures related to dispatch.STATESVerify that Policies and Procedures are in place and actively followed.
RAST-PA/LOC-I/3	Policies and Procedure to prevent LOC - Dissemination of safety Information	7	SE 28		High	Easy	P1	5	ALTA	Short	OPERATORSThis safety enhancement ensures that essential safety information and operational procedures generated by airplane manufacturers are included in operating manuals and training programs for pilots and other appropriate employee groups. STATESVerify that Policies and Procedures are in place and actively followed.
RAST-PA/LOC-I/4	Policies and Procedure to prevent LOC -Flight crew proficiency	11	SE 29		**High**	Difficult	P3	7	ALTA (IATA)	**Medium**	This safety enhancement is to ensure that air carriers have a process to enhance pilot proficiency. * For some carriers this may not apply

RastNo	Safety Enhancement Ac	GSI	Reference	CAST SE	S. Impa	Changeabili	Indicator	Priority	Champion	T. Fram	Notes
RAST-PA/LOC-I/5	Policies and Procedure to prevent LOC - Modifications to manufacturers recommendations	1			High	Easy	P1	6	ICAO	Medium	States shall ensure that any amendments or additions to Policies and Procedure will be coordinated with the Manufacturer and or the CAA who issued the type certificate.
RAST-PA/LOC-I/8	LOC Training – Special purpose training to prepare for the unexpected which lead to LOC-I.	1			High	Difficult	P3	9	CAST / ICAO	Long	Special purpose training to prepare for the unexpected which lead to LOC-I.