International Civil Aviation Organization
Second Meeting of the Asia Pacific Regional Aviation Safety Team (APRAST/2)
(Bangkok, Thailand, 21 – 24 August 2012)

Controlled Flight into Terrain (CFIT)

APRAST 2 Status Report

SUMMARY

Controlled flight into terrain (CFIT) - accidents, where a properly functioning aircraft under the control of a fully qualified and certificated crew is flown into terrain with no apparent awareness on the part of crew. This paper provides a summary of the result of the APRAST2 deliberations of the CFIT Sub-group responsible for development the Safety Enhancement Initiative (SEIs) and associated Detailed Implementation Plans (DIPs) for reducing the risk of a CFIT occurrence.

1. **INTRODUCTION**

1.1   Accident Data indicates that controlled flight into terrain (CFIT) accounts for just over 20% of all fatal accidents, a disproportionately high percentage given the low proportion of all accidents attributed to this category.   While ICAO and other organizations have undertaken a number of initiatives over the past 15 years which have met with some success, the data would suggest that additional efforts should be considered.

2. **DISCUSSION**

2.1   APRAST/1 created a sub-group to examine safety enhancement initiatives (SEIs) to reduce the risk of a controlled flight into terrain (CFIT) accident.

2.2   The APRAST/1 CFIT sub-group considered the eight (8) CFIT SEIs related to specific safety enhancements identified by the Commercial Aviation Safety Team (CAST), as well as implementation actions undertaken by the Asian COSCAPs and other ICAO aviation safety groups.

2.3   In seeking to identify a priority list of SEs, the APRAST/1 CFIT sub-group identified one additional SEI, worked to develop Detailed Implementation Plans (DIPs), and associated Outputs and identified Champions for seven (7) of the nine(9) SEIs. A preliminary priority list based on an IMPACT / CHANGEABILITY index was established.

2.4   APRAST/2 CFIT sub-group reviewed its previous work and revised the SEIs/DIPS/Outputs to better define purpose and detail work effort.   See Attachment I for list of proposed SEIs, including the analysis of IMPACT / CHANGEABILITY and Priority and identified Champions.

3.   During APRAST the CFIT Sub-group reviewed the 9 SEI that were developed during APRAST1 and completed the following actions:

3.1   CFIT 1 (SE1, 120) - Ground Round Proximity Warning Systems (GPWS) With Forward Looking Feature (Safety Impact High)

Purpose: The purpose of this SEI action is to promote compliance with ICAO SARPS regarding the equipage of GPWS-FLF (Forward Looking Feature) and ensure flight crews are trained and competent to effectively manage GPWS events including degraded performance issues and database validity.

Statement of Work: The SEI will result in the mandating of the equipage of GPWS with forward looking features (FLF) on applicable aircraft for all Asia Pacific States. All Asia Pacific operators will be required to comply with their respective State requirements and operators' approved training programs/procedures will be required to be in place to ensure flight crews respond effectively to GPWS warnings. All Asia Pacific operators will be required to ensure that their flight crews are aware of factors that can reduce effectiveness of GPWS and trained to mitigate the effects of GPWS degradation and have procedures in place to ensure that GPWS software/databases are current and GPWS equipment to be serviceable.

Champion: CAAS

Status: Detailed Implementation Plan (DIP) has been developed.

Recommendation: Forward DIP to RASG-AP for review and approval.

3.2   CFIT 2 (SE2) – Standard Operating Procedures (Safety Impact High)

Purpose: The purpose of this SE is to ensure that all Asia Pacific States have mandated the use of SOPs on applicable aircraft.

Statement of Work: This SEI will confirm that all Asia Pacific States have mandated the use of SOPs on applicable aircraft and that air operators are in compliance with State requirements.
Air operator will be encouraged to develop and maintain effective SOPs for applicable aircraft and ensure that flight crews use SOPs to reduce the risk of a CFIT event.

Champion: CAD Hong Kong

Status: Detailed Implementation Plan has been developed and work has commenced on the development of a draft Advisory Circular document.

Recommendation: Forward DIP to RASG-AP for review and approval.

3.3   CFIT 3 (SE3,4,5,6,7,8) – Precision-Like Approach Standard Operating Procedures (Safety Impact High)

Purpose: The purpose of this SE is to promote the development and issuance of an advisory circular (AC) containing information for air operators to use to develop Standard Operating

Procedures and training for pilots in use of the continuous descent final approach (CDFA) technique when flying non-precision approach procedures in all aircraft types.

Statement of Work: The SEI will consolidate valuable information that air operators may utilise to develop Standard Operating Procedures (SOP) and training for pilots in the use of continuous descent final approach (CDFA) techniques when flying non-precision approach procedures.

Champion: CASA

Status: DIP is under development.

Recommendation: Work to continue in developing a mature DIP which will be tabled at the APRAST 3 meeting for further review.

3.4   CFIT 4 (SE10) – Flight Data Analysis (Safety Impact High)

Purpose: The purpose of this SE is to develop and implement a non-punitive FDA program to promote compliance with the Annex 6, Part 1 requirement regarding establishment of non-punitive FDA program.

Statement of Work: The SEI will assist in the development and implementation of rules and procedures to use de-identified Flight Data information to proactively identify safety related issues and corrective actions. Key to the development and implementation of this project is the development of policies and guidance materials regarding non-punitive reporting which minimizes the misuse of collected data. This requirement should be dealt with through the development and implementation of State Safety Programmes ((SSP). Included in the development and implementation of proactive safety programs is the development of analytical tools for operators which will enable them to identify the system safety deficiencies, safety trends and initiate corrective actions prior to occurrence of an event.

Champion: Nepal Airlines

Status: DIP is fully developed.

Recommendation: Forward DIP to RASG-AP for review and approval.

3.5   CFIT 5 (SE11) – Crew Resource Management Training (Safety Impact Low)

Purpose: The purpose of this SE is to promote the implementation of Crew Resource Management (CRM) training programs for flight crew members and other personnel essential to flight safety to reduce the risk of a CFIT event.

Statement of Work: This SEI will promote the mandating by all Asia Pacific States of the ICAO Annex 6 Part 1 requirements for Human Factors principles training (CRM, TEM). Asia Pacific States will be required to develop and issue an AC promoting the development and implementation of Human Factors principles training (CRM, TEM) to reduce the risk of a CFIT.
Asia Pacific air operators will be required to be in compliance with State regulatory requirements.

 Champion: KOCA

Status: DIP is fully developed.

Recommendation: Forward DIP to RASG-AP for review and approval of SEI.

3.6   CFIT 6 (SE12/23) – CFIT/ALAR Training (Safety Impact Moderate)

Purpose: The purpose of this SE is to promote the training of flight crews in Approach and Landing Accident and Controlled Flight into Terrain Prevention.

The objectives of Approach and Landing Accident and Controlled Flight into Terrain Prevention Training Program are to provide flight crews with the ability to:
- Recognize the factors that may lead to CFIT accidents and incidents.
- Know the prevention strategies that will ensure a safe flight.
- Improve situational awareness in order to avoid CFIT.
- Learn an escape manoeuvre and techniques designed to enhance the possibility of survival.

Statement of Work: This SEI will promote the training of Asia Pacific flight crews in Approach and Landing Accident and Controlled Flight into Terrain prevention by developing and promulgating regulations, standards or requirements as necessary and guidance materials.

Champion: Singapore Airlines

Status: DIP is fully developed.

Recommendation: Forward DIP to RASG-AP for review and approval.

3.7   CFIT 7 (SE-14/15/16) ALAR - Policies for ALAR (Safety Impact Moderate)

Purpose: This SEI will promote the development of flight safety documents systems that ensures easy access to information required for flight and ground operations that is contained in the various operational documents comprising the system and which facilitate management of the distribution and revision of operational documents.

Statement of Work: The SEI will verify that all Asia Pacific States have mandated the requirement for air operators to have a flight safety document system. In addition all Asia Pacific air operators will be required to implement flight safety document systems and be in compliance with State requirements.

Champion: Hong Kong CAD

Status: DIP is under development.

Recommendation: Work to continue on the development of the DIP and a review of work completed to take place at the APRAST 3.

3.8   CFIT 8 (SE-9) Minimum Safe Altitude Warning (MSAW) (Safety Impact Moderate)

Purpose: The purpose of this SE is to promote that where MSAW equipment is being utilized it is important that all controllers are aware of the need to issue 'Safety Alert / Warning' when circumstances so warrant and that procedures have been clearly established in this regard.

Statement of Work: This SEI will promote Asia Pacific States to policies and procedures to ensure that where a Minimum Safe Altitude Warning (MSAW) alert is presented controllers need to issue a 'Safety Alert / Warning'.

Champion:

Status:

Recommendation: The CFIT Sub-group recommends that this SEI be moved to another Sub-group that has ATM expertise in its membership as the CFIT Sub-group does not have such expertise.

3.9   CFIT 9 Review of existing and emerging technologies for enhanced flight visibility.

Purpose: Promote awareness in the air operator and the regulator community of existing and emerging technologies in the area of Enhanced Vision Flight Systems that reduce the risk of a CFIT event.

Statement of Work: The SEI will consolidate information such as that in FAA AC 90-106 advisory circular to provide material to an applicant pursuing airworthiness certification and operational approval of enhanced flight vision systems.

Champion:

Status:

Recommendation: The CFIT Sub-group recommends that this SEI be placed in the Registry of Emerging Issues.

3.   **ACTION BY THE MEETING**

3.1   The meeting is invited to:

   a) Consider the Actions Completed by the CFIT Sub-group during the Sub-group breakout sessions, and;

   b) Confirm or revise the general priorities for CFIT SEIs.

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Attachment I

Controlled Flight into Terrain (CFIT)
Safety Enhancement Initiative Analysis
APRAST 2 August 2012

Number	Action	Impact	Changeability	IC #	Champion	Priority
CFIT1	Ground Round Proximity Warning Systems (GPWS) With Forward Looking Feature	High	Moderate	P2	CAAS	1
CFIT2	Standard Operating Procedures	High	Easy	P1	Hong Kong CAD	1
CFIT3	Precision-Like Approach Standard Operating Procedures	High	Moderate	P2	CASA	1
CFIT4	Flight Data Analysis	High	Difficult	P3	Nepal Airlines	2
CFIT5	Crew Resource Management Training	High	Moderate	P2	KOCA	1
CFIT6	CFIT/ALAR Training	Moderate	Moderate	P5	Singapore Airlines	3
CFIT7	ALAR - Policies for ALAR	Moderate	Moderate	P5	Hong Kong CAD	3
CFIT8	Minimum Safe Altitude Warning (MSAW)	Moderate	Difficult	P2	Not determined	1
CFIT9	Review of existing and emerging technologies for enhanced flight visibility.	Low	Not determined	Not determined	Not determined	Not determined