International Civil Aviation Organization 01/07/14
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17)
(Cochabamba, Bolivia (Plurinational State of), 21 to 25 July 2014)

Agenda Item 5: Air Navigation Deficiencies in the CAR/SAM Regions
5.1 Follow-up on application of the new uniform methodology for the identification, assessment and reporting of air navigation deficiencies

Follow-up on application of the new hazard identification and risk assessment (HIRA) uniform methodology process and air navigation deficiency reporting

(Note presented by the Secretariat)

EXECUTIVE SUMMARY	
This working paper presents updated information on the actions taken by ICAO on Hazard Identification and Risk Assessment (HIRA) application to assess State air navigation deficiencies in order to achieve agreement by the GREPECAS/17 Meeting on actions to be followed to improve the use of the aforementioned methodology.	
Action:	Suggested in Section 3
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
References:	• Report of the Sixteenth CAR/SAM Regional Planning and Implementation Group Meeting (GREPECAS/16) (Punta Cana, Dominican Republic, 28 March – 1 April 2011) • Report of the Second Programmes and Projects Review Committee Meeting (PPRC/2) (Lima, Peru, 16 - 18 July 2013) • GREPECAS Air Navigation Deficiencies Database (GANDD)

1. Introduction

1.1 Based on the uniform methodology for the identification, assessment and reporting of air navigation deficiencies formulated by the ICAO Council, GREPECAS and its contributory bodies have periodically examined the implementation status of the CAR/SAM Regional Air Navigation Plan during their meetings with a view to determine and assess air navigation field deficiencies in the CAR/SAM Regions.

1.2 As follow-up to GREPECAS Conclusions 16/42, 16/43 and 16/44, and following Air Navigation Commission (ANC) approval for its use, the GREPECAS Secretariat distributed State Letters through the SAM and NACC Regional Offices inviting States to analyze air navigation deficiencies by applying the new approved methodology on a trial basis.

1.3 GREPECAS approved the application of the new methodology based on the ICAO Safety Management System (SMS) provisions for the identification, assessment and reporting of air navigation deficiencies. This methodology considers deficiencies as safety hazards and applies the HIRA.

1.4 GREPECAS has also recognized that the lack of a State reply to perform the HIRA process against a deficiency may be considered as evidence of lack of service provider compliance with the implementation of a SMS.

1.5 Therefore, PPRC/2 adopted the Project of Conclusion 2/1 - *Improvements to the Revised Air Navigation Deficiencies Methodology and the GREPECAS Air Navigation Deficiencies Database (GANDD)* – based on ICAO reviewing and making necessary amendments to improve the air navigation deficiency processing methodology and the GANDD, and proposing the aforementioned improvements during GREPECAS/17.

2. Discussion

2.1 It has been noted that some States have initiated the application of this new methodology; however, not all States apply it in order to consider application mature according to expectations. Some States have also reported difficulties using the HIRA process.

2.2 In view of the limited use of the revised methodology for deficiency processing involving application of the HIRA process to priority "U" deficiencies and ICAO`s review of State action plans for deficiency resolution, the following has been observed:

- The revised methodology and process for the application of the HIRA shows marginal application, which could be associated with air navigation service providers level of SMS maturity or understanding of the methodology
- The process to update and close deficiencies in the GANDD also presents implementation difficulties

2.3 In accordance with GREPECAS guidelines, the Secretariat has fostered the use of the HIRA and has also organized training activities such as teleconferences, communication exchanges and/or State missions to apply the new methodology.

2.4 In order to assist States with implementation of this new methodology, the ICAO NACC and SAM Regional Offices organized workshops on the application of the HIRA and GANDD management with participation of State focal points.

2.5 The Secretariat requested IATA and IFALPA to provide deficiency information; WP/34 contains IATA's reply to this request. IFALPA has provided ICAO with deficiencies on different occasions.

2.6 In compliance with PPRC Project of Conclusion 2/1, the **Appendix** to this working paper presents a proposed amendment to the HIRA methodology.

2.7 It is important to bear in mind that the deficiency methodology was approved by the ICAO Council in 2001 and, to date, it has not been revised. During this period, significant changes have been performed on the Secretariat *modus operandi*, and ICAO audit processes have been consolidated.

3. Suggested Action

3.1 The Meeting is invited to:

a) take note of the information contained in this working paper;

b) review and approve the new version of the methodology for application of the HIRA to air navigation deficiencies included in the Appendix to this working paper; and

c) recommend other actions as deemed appropriate**.**

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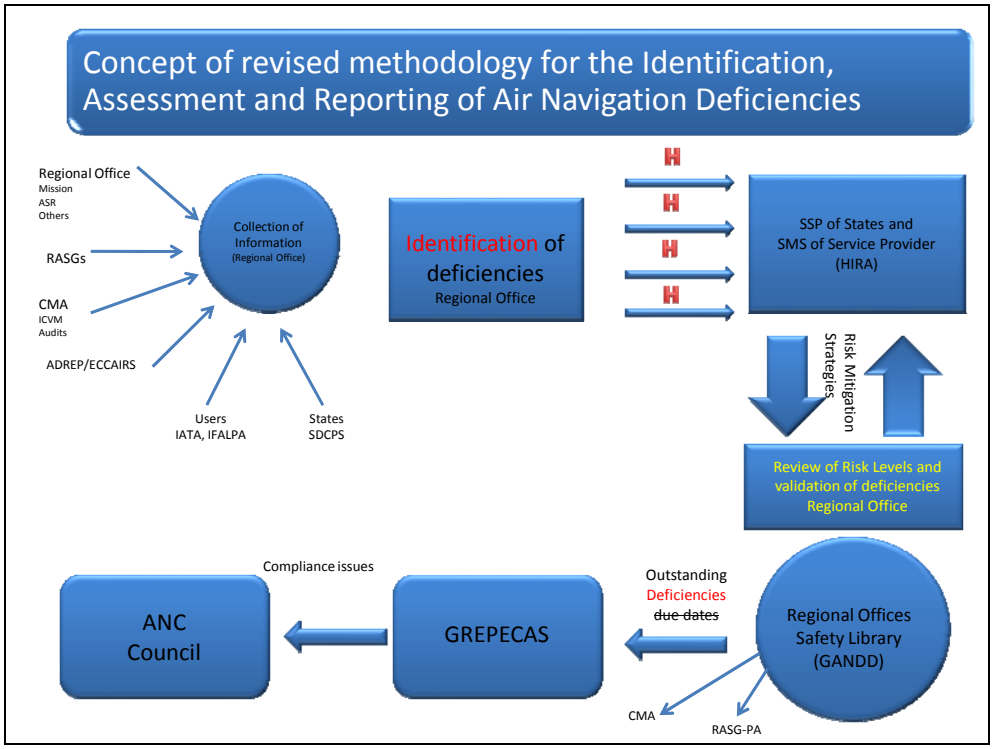
APPENDIX

REVISED METHODOLOGY FOR THE IDENTIFICATION, ASSESSMENT AND REPORTING OF AIR NAVIGATION DEFICIENCIES ~~(HAZARDS)~~
CAR/SAM



1. The Regional Office, upon identifying or receiving a report of a deficiency from sources approved by the Council (State/Territory, IATA, and IFALPA), assesses the report and verifies its validity.

2. The deficiency report duly validated by the corresponding Regional Office is sent to the State concerned through the designated focal point~~, using the Hazard Identification and Risk Assessment (HIRA) Form that appears in **Attachment A** to this procedure~~.

~~3.~~ The State *reviews* ~~enters~~ the deficiency ~~report into its safety system for the corresponding investigation.~~

~~4.~~*3.* ~~The State safety system,~~ using its internal procedures, *to* assesses the risk generated by the *hazard* ~~deficiency and the underlying factors and hazards,~~ expressed in terms of ~~likelihood~~ *probability* and severity *as established in ICAO Doc 9859, Safety Management Manual, so as to*:

a) Identify hazards.
~~a)~~*b)* Determine~~s~~ the *safety* risk tolerability index.
~~b)~~*c)* Identif~~ies~~y missing or inadequate defences.
~~c)~~*d)* Implement~~s~~ mitigation measures to control risk indices or values defined as intolerable, reducing the operational risk to an acceptable level.
~~d)~~*e)* ~~Disseminates the information according to its procedures~~.

~~5.~~*4.* The State will have ~~three months~~ *thirty days* to ~~return~~ *submit* to the corresponding Regional Office the *Hazard Identification and Risk Assessment (HIRA)* form ~~containing the risk mitigation recommendations report (RMRR)~~ that appears in *the* **Attachment ~~B~~** to this procedure, duly completed~~ and signed~~, and ~~will~~ insert a summary of the developed action plan~~ning~~ *in* the GANDD.

Note: ~~In case of criterion discrepancies in the risk assessment of the reported deficiency/hazard,~~ Within the following 15 working days of receiving the State feedback the corresponding Regional Office could suggest to the State to review the risk assessment of the analysis done of the reported deficiency.

~~6.~~*5.* If no information is received from the State ~~about the reported deficiency~~ within ~~a~~ *the established* period ~~of three months~~, this ~~will be considered as objective evidence of ineffectiveness of the SSP and/or SMS. This~~ information will be reported to the USOAP/CMA, which could increase the level of risk of this State~~ and activate any of the USOAP/CMA intervention tools~~.

~~7.~~*6.* The Regional Office will inform GREPECAS about the result of the risk mitigation assessment and ~~recommendations~~ *actions taken* by the State*, if any*.

~~8.~~*7.* Based on the result of the analysis of the deficiency, the information could be sent to the Air Navigation Commission or to ICAO Council.

~~*Note: **Attachments C** and **D** contain forms, with an example showing how they should be completed.*~~

~~9.~~*8.* A statistical report of CAR and SAM deficiencies/hazards will be provided to RASG-PA for inclusion in the annual safety report of that mechanism.

Deficiency: A deficiency is a situation where ~~condition in which~~ a facility, service, or procedure does not comply with ~~is not adjusted to~~ **a regional air navigation plan approved by the Council, or with the related ~~**corresponding**~~ **ICAO standards and recommended practices**, and which situation has a negative impact on the safety regularity and/or efficiency of international civil aviation.*

**Hazard: A hazard is a condition or object that might cause ~~harm~~ death, injuries to personnel, damage to equipment or structures, loss of materials, or a reduction in the capacity to perform a prescribed function.*

Note: For the purpose of aviation safety risk management, the term hazard should be ~~Within this context,~~ considered as a deficiency~~ies are considered as hazards~~.

ATACHMENT ~~A~~ TO *THE* APPENDIX ~~A~~

~~DEFICIENCY (HAZARD) IDENTIFICATION AND RISK ASSESSMENT REPORT~~	
~~1. Description of identified deficiency:~~	
~~2. State/Territory/Organization :~~	
~~3. Report N°:~~	
~~4. Date of identification:~~	
~~5. Report prepared by:~~	
~~6. Air Navigation Area Facility/service involved:~~	
~~7. Potential consequences of the hazard caused by the deficiency:~~	
~~8. Specific requirement:~~	
~~9. Mitigation currently implemented (if known):~~	
~~10. Remarks:~~	

11. Report prepared by: (ICAO Officer)	

DEFICIENCY (HAZARD) IDENTIFICATION AND RISK ASSESSMENT REPORT (CONT.)

		RISK SEVERITY				
		Catastrophic A	**Hazardous B**	**Major C**	**Minor D**	**Insignificant E**
RISK LIKELIHOOD	**Frequent 5**				*5D*	*5E*
	Occasional 4			*4C*	*4D*	*4E*
	Remote 3		*3B*	*3C*	*3D*	*3E*
	Unlikely 2	*2A*	*2B*	*2C*	*2D*	*2E*
	Extremely Unlikely	*1A*	*1B*	*1C*	*1D*	*1E*

5A, 5B, 5C, 4A, 4B, 3A	**Intolerable region (equivalent to U priority deficiencies)** Unacceptable under existing circumstances
5D, 4C, 4D, 3B, 3C, 2A, 2B, 5E, 2C, 4E, 3D	**Tolerable region (equivalent to A priority deficiencies)** Acceptable, based on risk mitigation. Might require a managerial decision.
1A, 1B, 1C, 1D, 1E, 2E, 3E, 2D	**Acceptable region (equivalent to B priority deficiencies)** Acceptable

Likelihood	Is defined as the likelihood of occurrence of an event or unsafe condition
Frequent:	•Likely to occur many times (has occurred frequently)
Occasional:	•Likely to occur some times (has occurred infrequently)
Remote:	•Unlikely, but might occur (occurs rarely)
Unlikely:	•Very unlikely to occur (no occurrence is known)
Extremely unlikely	•Almost unconceivable that the event may occur.

Severity:	Is defined as the possible consequence of an event or unsafe condition, based on the worst case scenario
Catastrophic	•Destroyed equipment •Multiple deaths
Hazardous	•An important reduction in safety margins, physical damage or a workload such that operator scannot perform their tasks in a precise and complete manner. •Serious injury •Major damage to equipment.
Major:	•A significant reduction in safety margins, a reduction in the ability of the operator to respond to adverse operating conditions as a result of an increased workload or as a result of conditions hindering its efficiency •Serious incident •Injury to individuals

Minor:	•Interference •Operational limitations •Use of emergency procedures •Minor incidents
Insignificant	•Slight consequences

EXPLANATION OF THE "DEFICIENCY (HAZARD) IDENTIFICATION AND RISK ASSESSMENT" FORM

1. **Description of identified deficiency:** Specifies the deficiency identified or the occurrence of the event, validated by the corresponding Regional Office.

2. **State/Territory/Organization:** Identifies the name of the State/Territory/Organization involved.

3. **Report N°:** Identifies the category of the deficiency identified for each State.

4. **Date of identification:** Indicates the DD/MM/YY of the report of the deficiency identified or of the occurrence of the event, as applicable.

5. **Report prepared by:** Indicates the source that identified and reported the deficiency.

6. **Air Navigation Area Facility/service involved or activity:** Specifies the air navigation area directly involved in the identified deficiency. More than one area may be listed.

7. **Potential consequences of the deficiency caused by the deficiency:** Initial assessment of the consequence of the identified deficiency, either by the source reporting the deficiency, or by the Regional Office that sends the report.

8. **Specific requirement:** If known, the specific error or failure that affected the operation is included.

9. **Mitigation currently implemented (if known):** If known, existing defences are included.

10. **Remarks:** Observations or comments on the identified deficiency may be included.

11. **Report prepared by (ICAO Officer):** The reporting ICAO Regional Office is specified.

ATTACHMENT ~~B~~ TO APPENDIX ~~A~~

SAFETY **RISK MITIGATION RECOMMENDATIONS REPORT**				
1. Description of identified deficiency:				
2. State/Territory/Organization:				
3. Report N°:				
4. Date of identification:				
5. Level of *safety* risk before mitigation measures are adopted:				
6. Solution ~~# 1~~				
7. Description of the solution:				
8. Estimated cost of this solution:	**9. Revised risk assessment if only this solution is to be implemented:**	**10. ~~Likelihood~~*Probability*:**		
$ _____		**11. Severity:**		
		12. Level of *safety* risk:		
13. Potential implementation problems:				
~~14. Solution # 2~~				
~~15. Description of the solution:~~				
~~16. Estimated cost and time for implementation of this solution~~ **~~$~~** _____	**~~17. Revised risk assessment if only this solution is to be implemented:~~**	**~~18.Likelihood:~~**		
		~~19. Severity:~~		
		~~20. Level of risk:~~		
~~21. Potential implementation problems:~~				
~~22. Solution # 3~~				

SAFETY RISK MITIGATION RECOMMENDATIONS REPORT				
~~23. Description of the solution:~~				
~~24. Estimated cost and time for implementation of this solution~~ ~~$~~	~~25. Revised risk assessment if only this solution is to be implemented:~~	~~26. Likelihood:~~		
		~~27. Severity:~~		
		~~28. Level of risk:~~		
~~29. Potential implementation problems:~~				
~~30~~*14*. Recommended solution(s):				
~~3~~1~~5~~. Estimated cost and *estimated* time for implementation of recommended solution(s):	$			
~~32~~*16*. Revised *safety* risk assessment if implemented as recommended:				

RISK PROBABILITY		RISK SEVERITY				
		Catastrophic A	Hazardous B	Major C	Minor D	Insignificant E
~~RISK LIKELIHOOD~~	Frequent 5	*5A*	*5B*	*5C*	*5D*	*5E*
	Occasional 4	*4A*	*4B*	*4C*	*4D*	*4E*
	Remote 3	*3A*	*3B*	*3C*	*3D*	*3E*
	~~Unlikely~~*Improbable* 2	*2A*	*2B*	*2C*	*2D*	*2E*
	Extremely *improbable*~~unlikely~~ 1	*1A*	*1B*	*1C*	*1D*	*1E*

~~33~~*17*. Report prepared by (State/Territory/Organization):	

EXPLANATION OF THE "*SAFETY* RISK MITIGATION RECOMMENDATIONS REPORT"

The State concerned shall complete the form based on the following explanations:

1. **Description of identified deficiency:** Complete with the same text contained in the deficiency or event occurrence report, validated by the corresponding Regional Office.
2. **State/Territory/Organization:** Complete with the name of the State/Territory/Organization.
3. **Report N°:** Complete with the same code of the identified hazard reported by the Regional Office and to which the risk mitigation recommendations refer.
4. **Date of identification:** Complete with the date (DD/MM/YY) of completion of the form.
5. **Level of *safety* risk before mitigation measures are adopted:** Complete with the level of risk estimated with the current mitigation measures.
6. **Solution ~~# 1~~:** Identifies the number of solution.
7. **Description of the solution:** Complete with a brief description of the first solution to be implemented.
8. **Estimated cost of this solution:** Complete with the estimated cost of implementing the first solution.
9. **Revised *safety* risk assessment if only this solution is to be implemented:** Associated to boxes 10, 11 and 12.
10. **~~Likelihood~~*Probability*:** Complete with the coded and plain-language likelihood index that would be achieved with the implementation of this mitigation measure.
11. **Severity:** Complete with the coded and plain-language severity index that would be achieved with the implementation of this mitigation measure.
12. **Level of *safety* risk:** Complete with the coded and plain-language tolerability index resulting from the implementation of this mitigation measure.
13. **Potential implementation problems:** Complete with a brief description of the potential implementation problems that might prevent the application of the identified solution.

~~**14. Solution # 2:** Identifies the number of solution or scenario.~~

~~**15. Description of the solution:** Complete with a brief description of the second solution to be implemented.~~

~~**16. Estimated cost and time for implementation of this solution:** Complete with the estimated cost of implementing the second solution.~~

~~**17. Revised risk assessment if only this solution is to be implemented:** Associated to boxes 18, 19, and 20.~~

~~**18. Likelihood:** Complete with the coded and plain-language likelihood index that would be achieved with the implementation of this mitigation measure.~~

~~**19. Severity:** Complete with the coded and plain-language severity index that would be achieved with the implementation of this mitigation measure.~~

~~**20. Level of risk:** Complete with the coded and plain-language tolerability index resulting from the implementation of this mitigation measure.~~

~~**21. Potential implementation problems:** Complete with a brief description of the potential implementation problems that might prevent the implementation of the identified solution.~~

~~**22. Solution # 3:** Identifies the number of solution or scenario.~~

~~**23. Description of the solution:** Complete with a brief description of the third solution to be implemented.~~

~~**24. Estimated cost and time for implementation of this solution:** Complete with the estimated cost of implementing the third solution.~~

~~**25. Revised risk assessment if only this solution is to be implemented:** Associated to boxes 26, 27 and 28.~~

~~**26. Likelihood:** Complete with the coded and plain-language likelihood index that would be achieved with the implementation of this mitigation measure.~~

~~27. **Severity:** Complete with the coded and plain language severity index that would be achieved with the implementation of this mitigation measure.~~

~~28. **Level of risk:** Complete with the coded and plain language tolerability index resulting from the implementation of this mitigation measure.~~

~~29. **Potential implementation problems:** Complete with a brief description of the potential implementation problems that might prevent the implementation of the identified solution.~~

~~30.~~*14.* **Recommended solution(s):** Complete with the solution(s) to be implemented for reducing the tolerability index to an acceptable level.

~~31.~~*15.* **Estimated cost and time for implementation of the recommended solution(s):** Complete with the estimated cost of the solutions to be implemented.

~~32.~~*16.* **Revised *safety* risk assessment if implemented as recommended:** Complete with the risk assessment once the solution(s) described above has (have) been implemented.

~~33.~~*17.* **Report prepared by (State/Territory/Organization):** Complete with the name of the corresponding aeronautical authority or individual or area generating the report.

- END -