International Civil Aviation Organization
South American Regional Office
Second SAM Multilateral AIM Meeting
for AIS-to-AIM Transition (SAM/AIM/2)
Lima, Peru, 26 to 30 September 2011
International Civil Aviation Organization

SAM/AIM/2-WP/04
10/08/11

Agenda Item 2: **Review of the status of implementation of the SARPs of Annex 4 and Annex 15**

2.1 State action plans for the resolution of deficiencies identified with respect to the SARPs of Annex 4 and Annex 15

Resolution of Deficiencies with Respect to Annex 4 and Annex 15 and Action Plans of SAM States

(Presented by the Secretariat)

Summary

This working paper presents a form for describing in detail the action plans submitted by SAM States for the resolution of identified deficiencies, and listing the focal points of contact and the means to be used for the exchange and follow up of information, with a view to monitoring the status of implementation at regional level and identifying short- and medium-term projects aimed at complying with the SARPs in each State.

References:

- Annex 4 to the ICAO Convention.
- Annex 15 to the ICAO Convention.
- GREPECAS/16 meeting, Punta Cana, Dominican Republic, 28 March to 1 April 2011.
- SAM/AIM/1 meeting, AIS-to-AIM transition roadmap, Lima, Peru, 24-28 May 2010.

ICAO strategic objectives:	*A – Safety* *C – Environmental protection*

1 Background

1.1 The roadmap approved by Headquarters and adopted by the SAM Region for the transition from AIS to AIM in three phases provides for a review, in Phase 1, of deficiencies within each State and compliance with the standards of Annexes 4 and 15 to the ICAO Convention.

1.2 The date of compliance with this requirement in Phase 1, as agreed by the States at the SAM/AIM/1 multilateral meeting, is December 2011.

1.3 The GREPECAS/16 meeting agreed to use a revised methodology for the identification, assessment and reporting of air navigation deficiencies, based on the premise that deficiencies are to be considered as safety hazards, and to implement a hazard identification and risk assessment (HIRA) process.

1.4 Likewise, the GREPECAS/16 meeting considered that the lack of response by a State to a deficiency identified and submitted by the respective Regional Office was proof of ineffective implementation, which could increase the level of risk in a State/Territory and result in the need for an ICAO audit under the new continuous monitoring approach (CMA) of the ICAO USOAP.

2 Discussion

2.1 In terms of compliance with the SARPs, there are deficiencies that have been outstanding for more than 10 years in the Region, and that require the adoption of actions to eliminate them in the short term. Since many "U" deficiencies have not been resolved yet, some aircraft operators are applying risk management techniques to continue operating safely.

2.2 The new methodology proposed by GREPECAS for analysing deficiencies is shown in **Appendix A** to this working paper and all SAM States attending the Meeting are expected to submit their action plans for the resolution of deficiencies by completing the form contained in **Appendix B** to this working paper.

2.3 The information provided by the States will allow the Regional Office to monitor the status of implementation at regional level, identify short- and medium-term projects aimed at achieving compliance with the SARPs in each State, and establish AIM implementation priorities.

3. Suggested action

3.1 The Meeting is invited to:

1) review the information provided in this working paper,

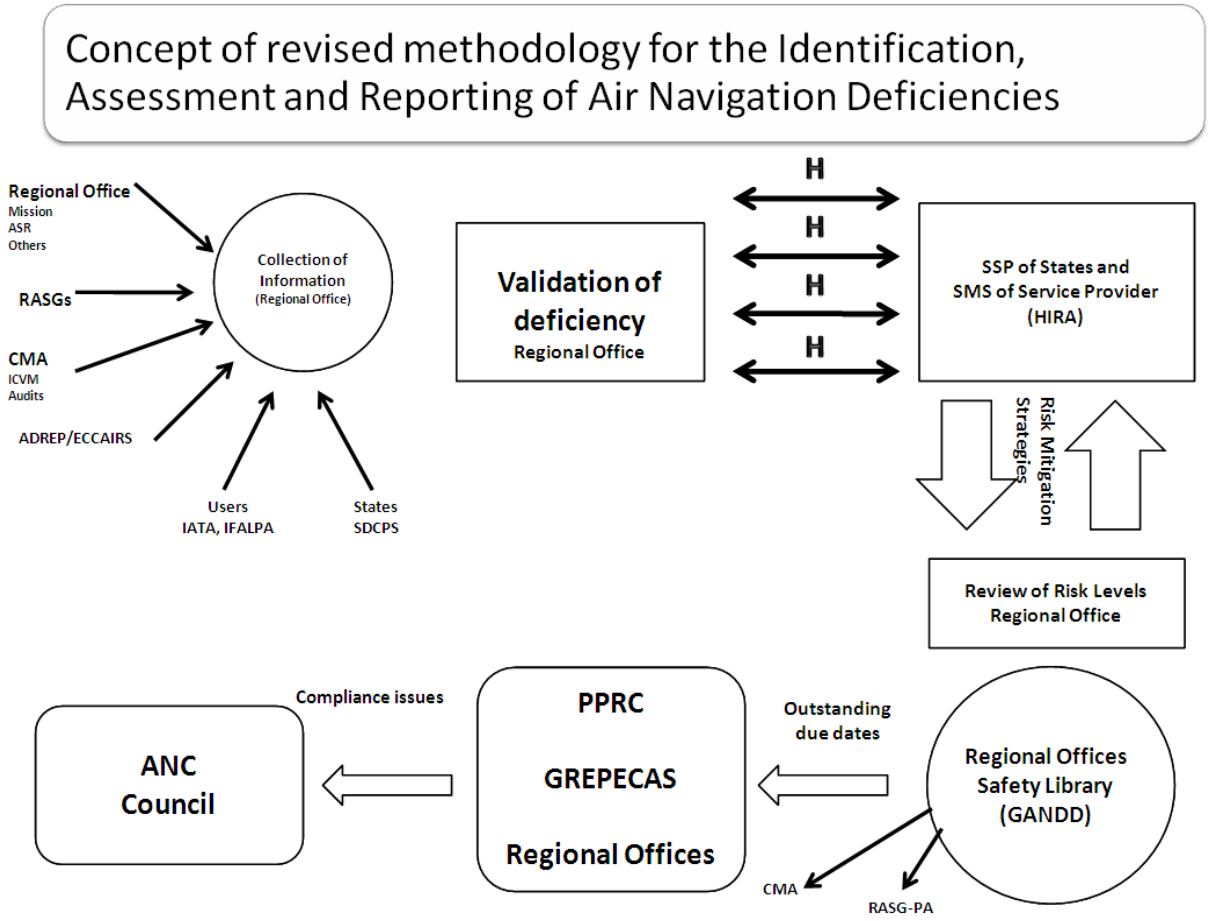
2) assess the safety impact of the deficiencies reported in accordance with the methodology described in **Appendix A**; and

3) take note of the action plans submitted by the States for the resolution of deficiencies, and complete **Appendix B** in accordance with the dates specified in the AIS-to-AIM transition roadmap.

* * *

APPENDIX A

REVISED METHODOLOGY FOR THE IDENTIFICATION, ASSESSMENT AND REPORTING OF AIR NAVIGATION DEFICIENCIES



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 1** to this procedure.

   Note: In case of criterion discrepancies regarding the need to make the next step of the process which entails risk analysis, the State might coordinate with its Regional Office the corresponding actions to deal with deficiencies.

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

4. The State safety system, using its internal procedures, assesses the risk generated by the deficiency and the underlying factors and hazards, expressed in terms of probability and severity:

   a) Determines the risk tolerability index.
   b) Identifies missing or inadequate defences.
   c) Implements mitigation measures to control risk indices or values defined as intolerable, reducing the operational risk to an acceptable level.
   d) Disseminates the information according to its procedures.

5. The State will have three months to return to the corresponding Regional Office the form containing the risk mitigation recommendations report (RMRR) that appears in **Attachment 2** to this procedure, duly completed and signed, and will insert a summary of the developed action plan in the GANDD.

   Note 5.1: In case of criterion discrepancies in the risk assessment of the reported deficiency/hazard, the corresponding Regional Office could suggest to the State to review the analysis.

   Note 5.2: The State/Territory may request its Regional Office an extension to the response deadline with the corresponding justifications.

6. If no information is received from the State about the reported deficiency within a period of three months, this will be considered as objective evidence of the 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. The Regional Office will inform GREPECAS about the result of the risk mitigation assessment and recommendations by the State.

8. Based on the result of the analysis of the deficiency, the information could be sent to the ICAO Air Navigation Commission on behalf of GREPECAS, the Regional Office or the PPRC.

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

   Deficiency: A deficiency is a situation where a facility, service, or procedure does not comply with **a regional air navigation plan approved by the Council, or with related 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 an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.*

   Note: Within this context, deficiencies are considered hazards.

ATTACHMENT 1 TO 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. Deficiency reported by:	
6. Air Navigation Area Facility/service involved:	
7. Specific requirement:	
8. Potential consequences of the hazard caused by the deficiency:	
9. Mitigation currently implemented (if known):	
10. Remarks:	
11. Report prepared by: (ICAO Officer)	

DEFICIENCY (HAZARD) IDENTIFICATION AND RISK ASSESSMENT REPORT						
		RISK SEVERITY				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
RISK PROBABILITY	Frequent 5	*5A*	*5B*	*5C*	*5D*	*5E*
	Occasional 4	*4A*	*4B*	*4C*	*4D*	*4E*
	Remote 3	*3A*	*3B*	*3C*	*3D*	*3E*
	Improbable 2	*2A*	*2B*	*2C*	*2D*	*2E*
	Extremely Improbable 1	*1A*	*1B*	*1C*	*1D*	*1E*

5A, 5B, 5C, 4A, 4B, 3A	**Intolerable region (equivalent to U-priority deficiencies)** Unacceptable under the 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. It may require management decision.
1A, 1B, 1C, 1D, 1E, 2E, 3E, 2D	**Acceptable region (equivalent to B-priority deficiencies)** Acceptable
Probability	Is defined as the likelihood that an unsafe event or condition might occur
Frequent:	•Likely to occur many times (has occurred frequently)
Occasional:	•Likely to occur sometimes (has occurred infrequently)
Remote:	•Unlikely to occur, but possible (has occurred rarely)
Improbable:	•Very unlikely to occur (not known to have occurred)
Extremely improbable:	•Almost inconceivable that the event will occur
Severity:	Is defined as the possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation.
Catastrophic	•Equipment destroyed •Multiple deaths
Hazardous	•A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely •Serious injury •Major equipment damage
Major:	•A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of increase in workload, or as a result of conditions impairing their efficiency •Serious incident •Injury to persons
Minor:	•Nuisance •Operating limitations •Use of emergency procedures •Minor incident
Negligible:	•Little 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°:** Unique Code that identifies the deficiency by 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. **Deficiency reported 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. **Specific requirement:** Standard/Recommended Practice of ICAO Annex or the reference to the requirement of the deficiency-related Air Navigation Plan requirement. If known, the specific error or failure that affected the operation is included

8. **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.

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 and Official is specified.

ATTACHMENT 2 TO APPENDIX A

<table>
<tr><th colspan="5">RISK MITIGATION RECOMMENDATIONS REPORT</th></tr>
<tr><td>1. Description of identified deficiency:</td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>2. State/Territory/Organization:</td><td colspan="4"></td></tr>
<tr><td>3. Report N°:</td><td colspan="4"></td></tr>
<tr><td>4. Date of identification:</td><td colspan="4"></td></tr>
<tr><td>5. Level of risk before mitigation measures are adopted:</td><td colspan="4"></td></tr>
<tr><td colspan="5">6. Solution # 1</td></tr>
<tr><td>7. Description of the solution:</td><td colspan="4"></td></tr>
<tr><td rowspan="2">8. Estimated cost and time for implementation of this solution:
$</td><td rowspan="3">9. Revised risk assessment if <u>only</u> this solution is to be implemented:</td><td>10.Probability:</td><td></td><td></td></tr>
<tr><td>11. Severity:</td><td></td><td></td></tr>
<tr><td>12. Level of risk:</td><td></td><td></td></tr>
<tr><td>13. Potential implementation problems:</td><td colspan="4"></td></tr>
<tr><td colspan="5">14. Solution # 2</td></tr>
<tr><td>15. Description of the solution:</td><td colspan="4"></td></tr>
<tr><td rowspan="2">16. Estimated cost and time for implementation of this solution
$</td><td rowspan="3">17. Revised risk assessment if <u>only</u> this solution is to be implemented:</td><td>18.Probability:</td><td></td><td></td></tr>
<tr><td>19. Severity:</td><td></td><td></td></tr>
<tr><td>20. Level of risk:</td><td></td><td></td></tr>
<tr><td>21. Potential implementation problems:</td><td colspan="4"></td></tr>
</table>

RISK MITIGATION RECOMMENDATIONS REPORT				
22. Solution # 3				
23. Description of the solution:				
24. Estimated cost and time for implementation of this solution **$** _____	**25. Revised risk assessment if only this solution is to be implemented:**	**26.Probability:**		
		27. Severity:		
		28. Level of risk:		
29. Potential implementation problems:				
30. Recommended solution(s):				
31. Estimated cost and time for implementation of recommended solution(s):	**$**			
32. Revised risk assessment if implemented as recommended:				

		RISK SEVERITY				
		Catastrophic A	**Hazardous B**	**Major C**	**Minor D**	**Negligible E**
RISK PROBABILITY	**Frequent 5**	***5A***	***5B***	***5C***	***5D***	***5E***
	Occasional 4	***4A***	***4B***	***4C***	***4D***	***4E***
	Remote 3	***3A***	***3B***	***3C***	***3D***	***3E***
	Improbable 2	***2A***	***2B***	***2C***	***2D***	***2E***
	Extremely Improbable 1	***1A***	***1B***	***1C***	***1D***	***1E***

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

EXPLANATION OF THE "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 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 and time for implementation of this solution:** Complete with the estimated cost of implementing the first solution.

9. **Revised risk assessment if only this solution is to be implemented:** Associated to boxes 10, 11 and 12.

10. **Probability:** Complete with the coded and plain-language Probability 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 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. **Probability:** Complete with the coded and plain-language Probability 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. **Probability:** Complete with the coded and plain-language Probability 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. **Recommended solution(s):** Complete with the solution(s) to be implemented for reducing the tolerability index to an acceptable level.

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

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

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