International Civil Aviation Organization

SP AFI/08-WP/24
2/9/08

WORKING PAPER

SPECIAL AFRICA-INDIAN OCEAN (AFI) REGIONAL AIR NAVIGATION (RAN) MEETING

Durban, South Africa, 24 to 29 November 2008

Agenda Item 4: Current status of aviation safety and related activities in the Africa-Indian Ocean (AFI) Region (Safety Committee)

CURRENT STATUS OF IMPLEMENTATION OF THE SAFETY CRITICAL ELEMENTS OF SAFETY OVERSIGHT SYSTEMS IN THE REGION

(Presented by the Secretariat)

SUMMARY

This paper outlines the current status of implementation of the safety critical elements of a safety oversight system by States in the AFI Region using the ICAO Universal Safety Oversight Audit Programme (USOAP) reports. The paper also contrasts accident data available in the accident/incident data reporting (ADREP) system with the current status of implementation of the safety critical elements.

Since all AFI States have not yet undergone an ICAO audit under the comprehensive systems approach, this paper reflects only the data currently available for thirty-six AFI States. This amounts to more than 68 per cent of the States, which is considered an acceptable sample size.

Action by the meeting is in paragraph 5.

1. INTRODUCTION

1.1 ICAO assists States in the identification, reporting and correction of deficiencies in safety critical elements of a State's civil aviation oversight system through the ICAO Universal Safety Oversight Audit Programme (USOAP). To achieve consistency and fairness, USOAP has adopted procedures and methodologies that are consistent with the auditing principles of internationally recognized auditing bodies such as the International Organization for Standardization (ISO). The ICAO Safety and Security Audits (SSA) Branch is ISO certified under ISO 9001:2000, in addition to being guided by its own quality assurance manual.

1.2 This paper outlines the current status of safety in the AFI Region in terms of the level of non-compliance of AFI States relative to the eight critical elements of a safety oversight system (i.e. primary aviation legislation, specific operating regulations, civil aviation system and safety oversight functions, qualifications and training of technical personnel, procedures and technical guidance, licensing and certification obligations, surveillance obligations and resolution of safety concerns) using the data compiled from the USOAP audit reports.

1.3 The data discussed below is also depicted in graphical form in Appendix A of this paper and represents the data compiled in respect of all the thirty-six AFI States which have been audited to date under the comprehensive systems approach. This data represents 68 per cent of the total number of fifty-three States within the AFI Region.

2. DISCUSSION

2.1 It is evident from the data that the level of non-compliance with the eight critical elements of a safety oversight system in the AFI States is high. For example, all AFI States which have been audited under the comprehensive systems approach have a non-compliance rate of over 50 per cent in all safety critical elements except in the area of primary legislation which is at 39 per cent.

2.2 The highest rate of non-compliance with a critical element observed during these audits of AFI States is the "qualifications and training of technical personnel" at an average of 73 per cent. This is followed by "resolution of safety concerns" at an average of 71 per cent.

2.3 The average rate of non-compliance for **"**civil aviation system and safety oversight functions", "procedures and technical guidance" and "surveillance obligations" was at a slightly lower average percentage rate in the low sixties followed by "specific operating regulations" and "licensing and certification obligations" at an average non-compliance percentage rate of over 50 per cent.

3. ANALYSIS OF AND RELATIONSHIPS TO ACCIDENT RATES AND THE LEVEL OF IMPLEMENTATION OF THE CRITICAL ELEMENTS OF A SAFETY OVERSIGHT SYSTEM

3.1 During 2007, prior to the 36th Session of the ICAO Assembly, USOAP conducted its first in-depth analysis of audit results under the comprehensive systems approach. This analysis made a significant contribution to ICAO's understanding of the level of implementation of its safety Standards and Recommended Practices (SARPs) and of the specific areas where focused action is required to improve safety. The analysis was based on the results of the first fifty-three safety oversight audits conducted under the comprehensive systems approach. The findings will vary as more States are audited and the corresponding results are entered in the database.

3.2 As a part of this first in-depth analysis, a statistical study was undertaken to ascertain if there was a relationship between the rate of non-compliance with the eight critical elements of the safety oversight systems and accident rates. Each critical element was tested independently for a linear relationship using a statistical model. The strength of the linear relationship is depicted in the following table:

Critical Element	Relationship to Accident Rates
CE 8 (Resolution of Safety Concerns)	very strong
CE 6 (Licensing and Certification)	very strong
CE 3 (State Civil Aviation System and Oversight Functions)	very strong
CE 7 (Surveillance Obligations)	very strong
CE 2 (Specific Operating Regulations)	medium
CE 5 (Procedures and Technical Guidance)	medium
CE 4 (Qualifications and Training of Technical Personnel)	medium
CE 1 (Primary Aviation Legislation)	weak

4. CONCLUSION

4.1 There is strong evidence from data presented, as outlined in this paper and depicted in Appendix A, that the level of non-implementation of the critical elements of a safety oversight system in the AFI Region is at a very high level. As shown in the graph in Appendix B, the current accident rate for scheduled operations in Africa is approximately nine times the world average and more than three times that of any other region.

4.2 Moreover, based upon the analysis of audit results during the reporting period of April 2005 to May 2007, there is a very strong relationship between four of the critical elements and accident rates. Given the high rate of non-implementation in the AFI Region in seven of the eight critical elements and the indicative relationship to accident rates, States in the AFI Region should improve the level of implementation of the eight critical elements, ensure that personnel and organizations performing an aviation activity within their territory meet the established requirements before they are allowed to exercise the privileges of a licence, certificate, authorization and/or approval and conduct effective surveillance over their aviation industry, including the ability to identify and resolve safety-related deficiencies. On this basis, the meeting is invited to adopt the following recommendation:

Recommendation 4/x — Regional Safety Planning Methodology

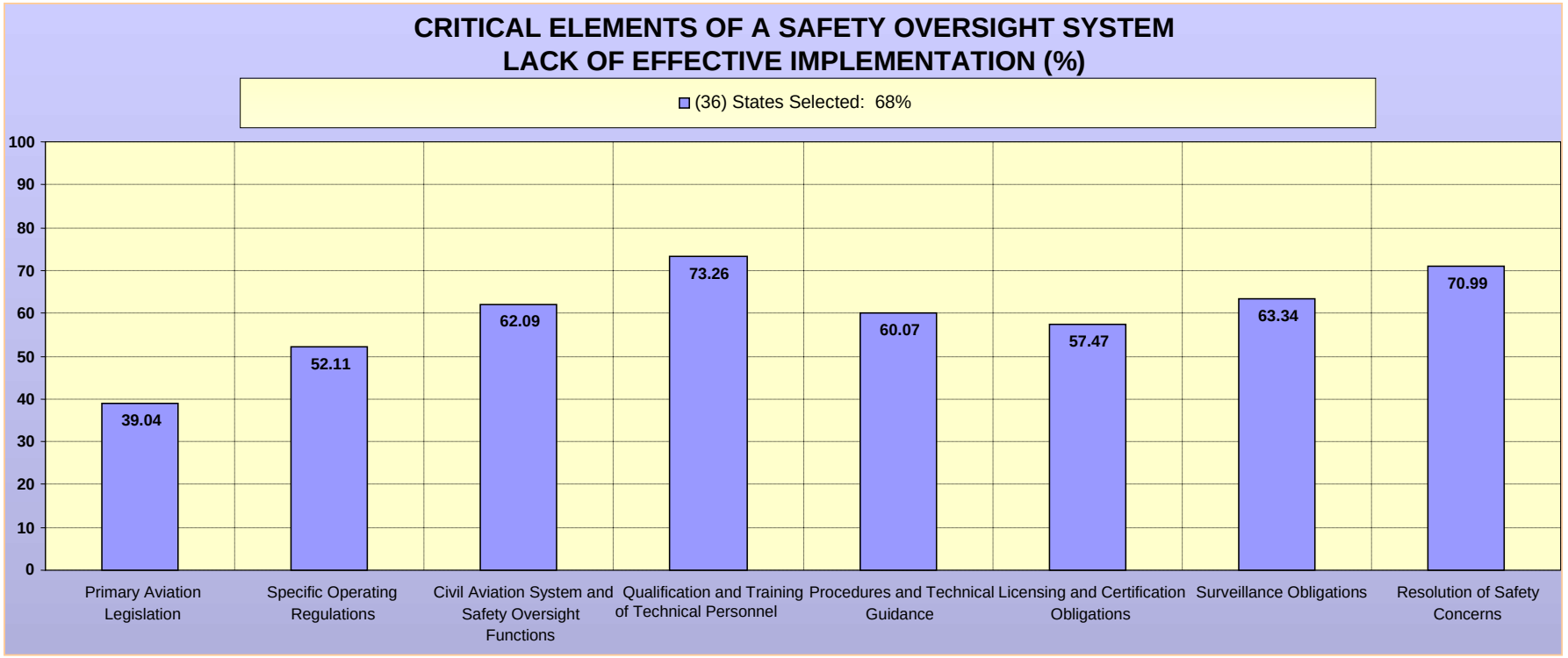
That when performing gap analysis and developing implementation plans following the Global Aviation Safety Plan (GASP) methodology, States set a high priority to addressing deficiencies related to Critical Element 8 (resolution of safety concerns), Critical Element 6 (licensing and certification), Critical Element 3 (State civil aviation system and oversight functions) and Critical Element 7 (surveillance obligations) of their safety oversight system in light of the very strong relationship of these elements to accident rates.

5. ACTION BY THE MEETING

5.1 The meeting is invited to approve the draft Recommendation at paragraph 4.2 above.

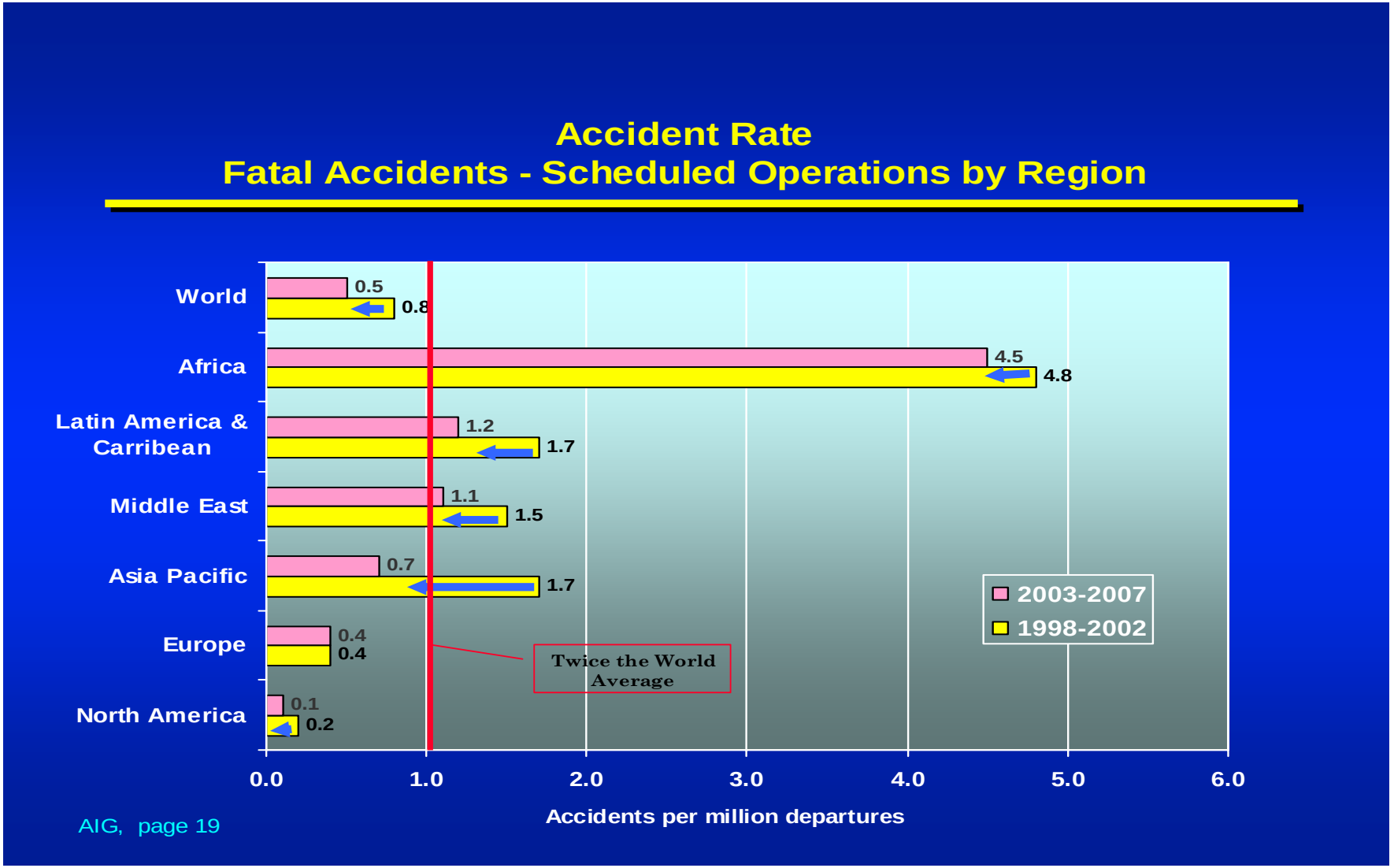
— — — — — — — —

APPENDIX A


CRITICAL ELEMENTS OF A SAFETY OVERSIGHT SYSTEM
LACK OF EFFECTIVE IMPLEMENTATION (%)
(36) States Selected: 68%
100
90
80
70
60
50
40
30
20
10
0
39.04
52.11
62.09
73.26
60.07
57.47
63.34
70.99
Primary Aviation Legislation
Specific Operating Regulations
Civil Aviation System and Safety Oversight Functions
Qualification and Training of Technical Personnel
Procedures and Technical Guidance
Licensing and Certification Obligations
Surveillance Obligations
Resolution of Safety Concerns

— — — — — — — —

APPENDIX B



— END —