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International Civil Aviation Organization

WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

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COMMITTEE B

Agenda Item 6: Organizational safety issues
6.1 Strategic plan

Recommendations Relating to the Safety Oversight Margin Indicator Included in the Global Aviation Safety Plan (GASP)

(Presented by the United States)

SUMMARY

This paper requests that ICAO remove the use of the Safety Oversight Margin (SOM) as an indicator and/or target in the Global Aviation Safety Plan (GASP), and replace it with an alternate metric.

Action: The Conference is invited to:
a) Recommend that the ICAO GASP Study Group remove the use of the SOM as an indicator and/or target, and
b) Replace it with the alternate metric suggested in paragraph 2.9.

1. INTRODUCTION

1.1 During the ICAO 39th Session of the Assembly, Resolution A39-12, ICAO global planning for safety and air navigation was adopted and the Assembly recognized the importance of a global framework to support the Strategic Objectives of ICAO. The global aviation safety roadmap, presented in the draft 2020-2022 edition of the GASP, serves as an Action Plan to assist the aviation community in achieving the GASP goals.

1.2 The purpose of the GASP is to reduce fatalities, and the risk of fatalities, by guiding the development of a harmonized safety strategy and the implementation of regional and national aviation safety plans. The GASP strives to enhance global civil aviation safety through taking data-driven decisions.

2. DISCUSSION

2.1 The 2020-2022 edition of the GASP, ICAO Document 10004, introduces a new metric known as the SOM. The SOM is the difference between that State's effective implementation (EI) score of the critical elements of a safety oversight system and the minimum EI score for that State. The minimum EI score is the value produced by a global linear regression of traffic versus EI, applied to the traffic of the State. Essentially, this metric is a traffic-weighted average EI score. The purpose of this new metric is to assess States' safety oversight capabilities. This assessment is intended to assist ICAO and the Regional Aviation Safety Groups (RASGs) in prioritizing their resources.

2.2 The United States fully supports the purpose of the GASP and the development of an additional metric to assist ICAO and the RASGs in prioritizing their resources. At this time, the SOM, however, has several shortcomings as detailed below, which should preclude its use as an indicator in the GASP. SOM scores are not strongly correlated with other indicators such as accident and incident rates, suggesting that SOM is not a good proxy for the strength of a State's safety oversight capabilities.

2.3 The concept of a SOM may have the unintended consequence of leading a State with a positive margin to believe it has more oversight than it needs. For example, some States currently have EI scores that are nearly double the target EI scores identified by the SOM tool. Faced with resource constraints, a State with a high positive SOM might reasonably conclude that it should take resources away from aviation safety and apply them somewhere else. This outcome would be in conflict with the goals of the GASP.

2.4 SOM is dependent on traffic volumes. Therefore, a State's margin is likely to change over time even if its oversight capabilities remained the same. A positive change over time does not necessarily indicate a positive change to a State's oversight capabilities. A State could also improve its SOM if traffic volume fell from one period to another. However, the analysis mechanisms used to develop the SOM are not transparent, so it is not clear how changes in traffic volume impact a State's score. As a result, a State would struggle to predict what EI score they need to achieve to maintain a positive margin as traffic changes.

2.5 The data used to calculate SOM is only a subset of traffic that a State must oversee. Overflights and international operator traffic are not included in a State's traffic, which skews the results of the linear regression underlying the indicator. As a result, States with overflights and/or international traffic, as a high percentage of traffic, would not have an appropriate score. SOM, as currently drafted, makes it mathematically impossible for States with the highest aviation traffic to achieve a positive safety margin even with a near perfect EI score.

2.6 SOM is based on a linear regression, meaning that States are compared to other States. Therefore, a State that made no changes to its oversight capabilities would have a reduction in its margin over time if other States improved their EI score. This leads to a zero-sum game, which could discourage States from providing technical assistance to others.

2.7 The GASP relies on the SOM in three targets, which may lead to unintended consequences.

2.7.1 Target 2.2 calls for all States to have positive SOMs. However, the margin calculation involves a linear regression, which compares States to one another. In the same way that not all States can have above-average EI scores, not all states can have a positive SOM. A significant number of States will be on or below the line. Therefore, it will not be possible for all States to meet Target 2.2.

2.7.2 Target 4.1 calls for States with negative SOMs to request assistance from other States or oversight bodies. Because the SOM is not a reliable indicator of the effectiveness of a State's safety oversight capabilities, this target could lead to States with more capable oversight systems and higher EI scores having to request assistance from states with less capable systems and lower EI scores to meet the Target 4.1. This is not an effective allocation of States' resources.

2.7.3 Target 4.3 calls for States with a positive SOM (and an effective State Safety Program) to actively lead RASGs' safety risk management activities. However, a State can have a low EI score and still have a positive SOM. This target could incentivize a State to seek leadership in activities that it is not capable of leading effectively.

2.8 The United States is concerned that the use of the SOM as presented in the latest draft of the GASP has numerous shortcomings to be an effective means of measuring performance under the GASP. Inclusion of the SOM in its current state will severely undermine the effectiveness of the GASP, as States cannot have confidence in its outputs.

2.9 The United States suggests that ICAO modify the GASP as follows:

a) Remove SOM as a GASP indicator.

b) Utilize the recommendations of the ICAO Group of Experts for a USOAP CMA Structured Review to utilize a priority protocol question EI score and an implementation EI score, in addition to overall EI score. This combination of scores would provide better visibility of the State's safety oversight system. Using the revised EI score as a base should highlight where regional resources should be focused.

3. CONCLUSION

3.1 The Conference is invited to recommend that the ICAO GASP Study Group remove the use of the SOM as an indicator and/or target, and replace it with the alternate metric suggested in paragraph 2.9.

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