



*International Civil Aviation Organization*  
**Seventeenth Meeting of the Regional Aviation Safety Group  
– Pan America (RASG-PA) Executive Steering Committee**  
**RASG-PA ESC/17**



San José, Costa Rica, 24 June 2013

**Agenda Item 2: Review RASG-PA ESC/17 Working Papers**

**DEVELOPMENT OF METRICS TO MEASURE THE INSTITUTIONAL STRENGTHS OF THE  
CIVIL AVIATION AUTHORITIES**

(Presented by ICAO)

**SUMMARY**

This working paper provides the current status on the progress made in the development of a metric for measuring the institutional strength of Civil Aviation Authorities (CAA), which could be included in the proactive information section of the RASG-PA Annual Safety Report (ASR) as a way to raise State awareness on the importance of the institutional strength of their civil aviation authorities.

<b>Strategic objective</b>	<i>This working paper is related to Strategic Objective A – Safety</i>
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**1. Introduction**

1.1 During the ESC/15 Meeting (Santiago, Chile, 21 October 2012), a RASG-PA project proposal was presented regarding development of a metric to measure the institutional strengths of Civil Aviation Authorities (CAA) in the Region(s). It was noted that it had become increasingly clear how important the institutional strength of a CAA was to safety.

1.2 Institutional weakness can be tolerated in certain governmental sectors that are less exposed to the international environment, that do not manage the safety of a sector tied to the economy of a State, or inclusively, for the air transport business of a region. The institutional weakness of one CAA may have a negative impact on the whole region.

1.3 The ESC took note of the proposal and requested the Secretariat to continue maturing the concept and report on progress.

**2. Discussion**

2.1 A well-funded institution with enough flexibility to adapt its regulations to the changing environment of civil aviation, achieve recruiting objectives, retain well-qualified personnel, train staff, and maintain a suitable operational structure constitutes a cornerstone in ensuring the safe and organized development of civil aviation. However, this is not the common denominator in many of the States in our regions, which face many domestic challenges that end up weakening their institutions.

2.2 With the support of safety analysis specialists from ICAO Headquarters, a proposal was initiated for the development of this metric, based on ten (10) variables, five (5) that are to be obtained through letters to States and the other five (5) from the ICAO Universal Safety Oversight Audit Programme (USOAP) Protocol Questions (PQ).

2.3 The 10 variables could be catalogued as satisfactory or unsatisfactory, thus a maximum score would be 10 and a minimum 0.

2.4 The first five (5) variables to be taken under consideration would be:

1. The average years of service of safety inspectors;
2. the percentage of public governmental budget exclusively dedicated to civil aviation safety oversight activities;
3. the average annual salary for a safety inspector with 5-years experience, divided by the average annual salary of an airline pilot;
4. the number of Directors General of Civil Aviation (DGCA) in the last ten years, and;
5. DGCA budget percentage for participation in international activities.

2.5 The five (5) variables based on the ICAO USOAP PQ are as follows:

1. Is there a distinct separation of responsibilities between the regulatory body and air operators, aerodrome operators, service providers and aviation training centres, particularly when operator or service provider functions are carried out by the State?
2. Has the State established a mechanism to ensure that the CAA(s) have sufficient financial resources to meet its national and international obligations related to civil aviation safety oversight?
3. Has the State established a mechanism to ensure that the CAA(s) have sufficient human resources to meet its national and international obligations related to civil aviation safety oversight?
4. Are the CAA(s) enabled to attract, recruit and retain appropriately qualified and experienced technical staff?
5. Are the relevant ICAO documents and other technical publications readily available to the technical and administrative staff of the CAA(s)?

2.6 The ICAO SAM Regional Office requested five States to voluntarily provide information regarding the first five variables. The results of this exercise are in the **Appendix**.

2.7 The exercise helped to determine that it was not that difficult to obtain the information requested, and the results indicated a consistency in the information received. It may be necessary to include explanatory notes in the survey to be conducted in order to avoid any distortions.

2.8 When more data is collected, the acceptable range in each variable would need to be considered and agreed upon.

### 3. **Suggested action**

3.1 The RASG-PA ESC is requested to:

- a) take note of the information presented in this working paper;
- b) comment on the proposed methodology for the development of a metric to measure the institutional strength of the CAAs; and
- c) decide on the appropriateness of requesting all RASG-PA member States, through a State letter, to provide the information on these five variables, aimed at developing an investigational indicator on the institutional strength of the CAAs for the future consideration of RASG-PA under its annual safety report.

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## APPENDIX

### DEFINITION, TESTING AND METHODOLOGY FOR VARIABLES

#### 1. Methodology

1.1 This part provides additional information about the thresholds defined and methodology used for the first five variables.

	Definition	Threshold Satisfactory	Threshold Unsatisfactory
Variable 1	Average years of service of safety inspector	$\geq 10$	$< 10$
Variable 2	Government budget dedicated to CAA oversight activities (in %)	$\geq 0.02\%$	$< 0.02\%$
Variable 3	Annual salary for safety inspector with 5-years of experience, divided by average annual salary of an airline pilot (in %)	$\geq 50\%$	$< 50\%$
Variable 4	Number of Directors General of Civil Aviation (DGCA) in the last ten years	$\leq 3$	$> 3$
Variable 5	DGCA budget for participation in international activities (in %)	$\geq 1\%$	$< 1\%$

#### 2. Definition of PQ variables

2.1 The following section describes the five selected PQ in more detail. Furthermore, the table shows to which Critical Element (CE) the respective PQ belongs to. Finally, the Lack of Effective Implementation (LEI) for the geographic group of Latin America and the Caribbean is provided.

	Number	Question	CE	PQ LEI (%) <sup>1</sup>
Variable 6	2.021	Is there a distinct separation of responsibilities between the regulatory body and air operators, aerodrome operators, service providers and aviation training centres, particularly when operator or service provider functions are carried out by the State?	3	64.52
Variable 7	2.051	Has the State established a mechanism to ensure that the CAA(s) have sufficient financial resources to meet its national and international obligations related to civil aviation safety oversight?	3	22.58
Variable 8	2.053	Has the State established a mechanism to ensure that the CAA(s) have sufficient human resources to meet its national and international obligations related to civil aviation safety oversight?	3	67.74
Variable 9	2.103	Are the CAA(s) enabled to attract, recruit and retain appropriately qualified and experienced technical staff?	3	32.26
Variable 10	2.201	Are the relevant ICAO documents and other technical publications readily available to the technical and administrative staff of the CAA(s)?	5	35.48

<sup>1</sup> \* Latin America and Caribbean only

3. **Testing**

3.1 The ICAO SAM Regional Office requested five States to voluntarily provide information regarding the first five variables. The table below shows the results of this exercise:

	<b>State 1</b>	<b>State 2</b>	<b>State 3</b>	<b>State 4</b>	<b>State 5</b>
Variable 1	10	11.42	11	8.12	NA
Variable 2	0.05%	2.11%	0.0081%	0.021%	NA
Variable 3	36.11%	33%	20%	48.65%	NA
Variable 4	7	3	8	6	NA
Variable 5	6.5%	0.00785%	2.04%	0.37%	NA

3.2 Based on thresholds outlined earlier and information from the ICAO USOAP database, a table with results for the ten variables is shown below:

		<b>State 1</b>	<b>State 2</b>	<b>State 3</b>	<b>State 4</b>	<b>State 5</b>
<b>Metrics</b>	Variable 1	S	S	S	U	NA
	Variable 2	S	S	U	S	NA
	Variable 3	U	U	U	U	NA
	Variable 4	U	S	U	U	NA
	Variable 5	S	U	S	U	NA
	<b>Metrics Score</b>	<b>3/5</b>	<b>3/5</b>	<b>2/5</b>	<b>1/5</b>	
<b>USOAP</b>	Variable 1	U	U	U	U	S
	Variable 2	S	S	U	S	S
	Variable 3	U	U	U	U	U
	Variable 4	S	S	U	U	S
	Variable 5	U	S	U	S	S
	<b>USOAP Score</b>	<b>2/5</b>	<b>3/5</b>	<b>0/5</b>	<b>2/5</b>	
	<b>Score(s)</b>	<b>5/10</b>	<b>6/10</b>	<b>2/10</b>	<b>3/10</b>	

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