



INTERNATIONAL CIVIL AVIATION ORGANIZATION

A United Nations Specialized Agency

USOAP Continuous Monitoring Approach (CMA) Workshop

Module 2

Overview of the USOAP CMA

Objective



The objective of this module is to provide an up-to-date overview of the USOAP CMA methodology and activities.

Outline



- 1) Monitoring and Oversight (MO)
- 2) Critical Elements (CEs) of a State Safety Oversight System
- 3) USOAP CMA Audit Areas and Protocol Questions (PQs)
- 4) USOAP CMA Components
 - a) Collection of Safety Information
 - b) Determination of State Safety Risk Profile
 - c) Prioritization and Conduct of USOAP CMA activities
 - d) Update of Effective Implementation (EI) and Status of Significant Safety Concerns (SSCs)
- 5) Roll-out of SSP Implementation Assessments under USOAP CMA
- 6) States' main obligations under USOAP CMA
- 7) USOAP CMA Computer-Based Training (CBT)

1) Monitoring and Oversight (MO)



ANB Org Structure



Monitoring & Oversight (MO)

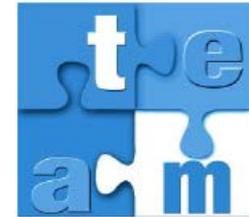


Continuous Monitoring
(Online Framework — OLF)

AUGUST 2013

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Planning and
Scheduling



On-site Activities



Off-site Activities



Reports, Analyses
and Working Papers



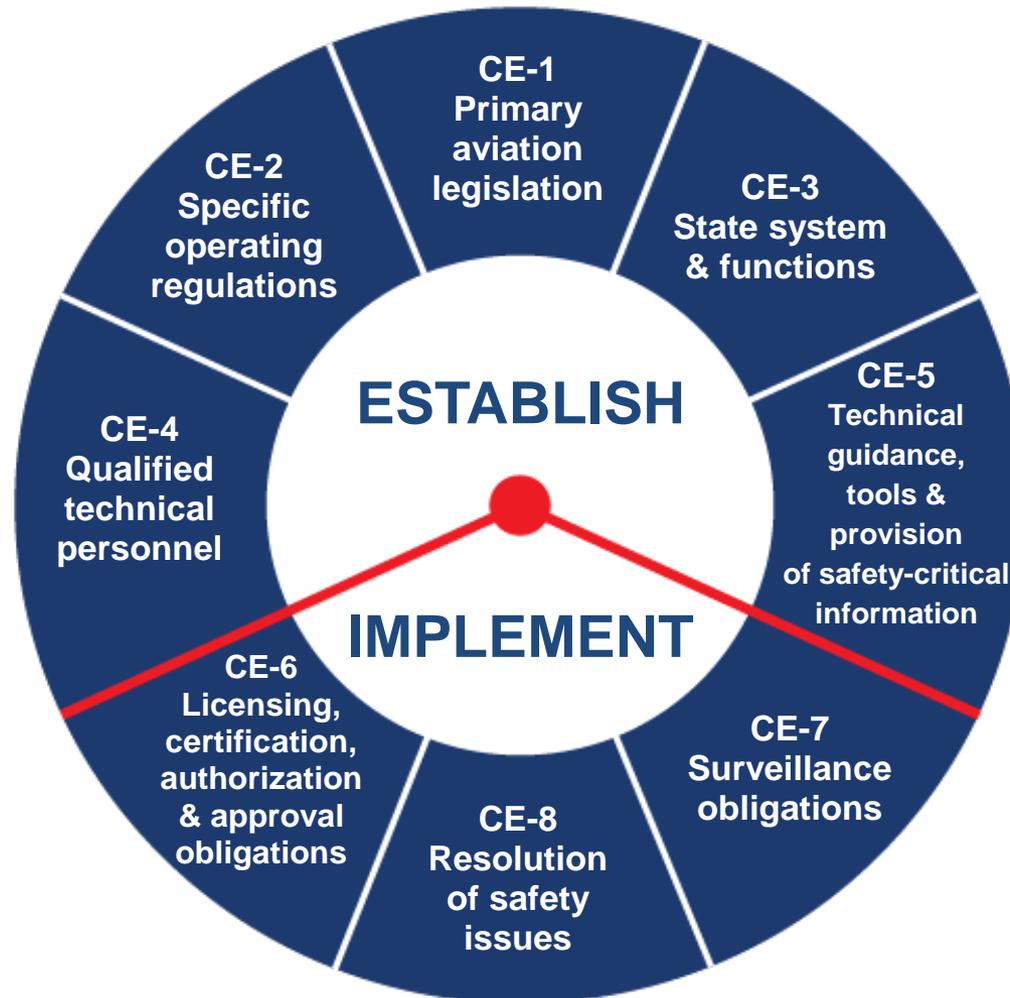
Training and
Workshops

2) Critical Elements (CEs) of a State Safety Oversight System

ICAO carries out audits and other monitoring activities to determine the safety oversight and accident/incident investigation capabilities of its Member States by:

- Assessing their effective implementation of the 8 CEs in 8 audit areas (i.e. LEG, ORG, PEL, OPS, AIR, AIG, ANS and AGA) through Protocol Questions (PQs); and
- Verifying the status of the Member States' implementation of:
 - Safety-related ICAO Standards and Recommended Practices (SARPs);
 - Associated procedures; and
 - Guidance material.

Critical Elements (CEs)



Critical Element 1



CE-1: Primary aviation legislation

- States shall promulgate a comprehensive and effective aviation law, commensurate with the size and complexity of their aviation activity and consistent with the requirements contained in the Convention on International Civil Aviation, to enable the oversight and management of civil aviation safety and the enforcement of regulations through the relevant authorities or agencies established for that purpose.
- The aviation law shall provide personnel performing safety oversight functions access to the aircraft, operations, facilities, personnel and associated records, as applicable, of individuals and organizations performing an aviation activity.

Critical Element 2



CE-2: Specific operating regulations

- States shall promulgate regulations to address, at a minimum, national requirements emanating from the primary aviation legislation, for standardized operational procedures, products, services, equipment and infrastructures in conformity with the Annexes to the Convention on International Civil Aviation.

Critical Element 3



CE-3: State system and functions

- States shall establish relevant authorities or agencies, as appropriate, supported by sufficient and qualified personnel and provided with adequate financial resources for the management of safety.
- States authorities or agencies shall have stated safety functions and objectives to fulfill their safety management responsibility.
- States shall ensure that personnel performing safety oversight functions are provided with guidance that addresses ethics, personal conduct and the avoidance of actual or perceived conflicts of interest in the performance of official duties.

Critical Element 4



CE-4: Qualified technical personnel

- States shall establish minimum qualification requirements for the technical personnel performing safety-related functions and provide for appropriate initial and recurrent training to maintain and enhance their competence at the desired level.
- States shall implement a system for the maintenance of training records for technical personnel.

Critical Element 5



CE-5: Technical guidance, tools and provision of safety-critical information

- States shall provide appropriate facilities, comprehensive and up-to-date technical guidance material and procedures, safety-critical information, tools and equipment, and transportation means, as applicable, to the technical personnel to enable them to perform their safety oversight functions effectively and in accordance with established procedures in a standardized manner.
- States shall provide technical guidance to the aviation industry on the implementation of relevant regulations.

Critical Element 6



CE-6: Licensing, certification, authorization and approval obligations

- States shall implement documented processes and procedures to ensure that individuals and organizations performing an aviation activity meet the established requirements before they are allowed to exercise the privileges of a licence, certificate, authorization or approval to conduct the relevant aviation activity.

Critical Element 7



CE-7: Surveillance obligations

- States shall implement documented surveillance processes, by defining and planning inspections, audits, and monitoring activities on a continuous basis, to proactively assure that aviation licence, certificate, authorization and approval holders continue to meet the established requirements. This includes the surveillance of personnel designated by the Authority to perform safety oversight functions on its behalf.

Critical Element 8



CE-8: Resolution of safety issues

- States shall use a documented process to take appropriate actions, up to and including enforcement measures, to resolve identified safety issues.
- States shall ensure that identified safety issues are resolved in a timely manner through a system which monitors and records progress, including actions taken by individuals and organizations performing an aviation activity in resolving such issues.

Eight CEs of a State safety oversight system

Definitions of CEs: in Annex 19 — *Safety Management*, Appendix 1 (2nd edition, July 2016)

Guidance for CEs:

Doc 9734 — *Safety Oversight Manual*, Part A — *The Establishment and Management of a State Safety Oversight System* (3rd edition, 2017)*.

* Available on ICAO-Net and CMA Library of the CMA OLF.



As of January 2013, safety oversight information is available on the [ICAO public website](http://www.icao.int/safety/Pages/USOAP-Results.aspx):

URL: <http://www.icao.int/safety/Pages/USOAP-Results.aspx>

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CONFLICT ZONE UPDATES

ICAO / Safety / Safety Audit Results: USOAP interactive viewer

Safety Audit Results: USOAP interactive viewer

Please select a country from the list below the viewer to see its audit 'Effective Implementation' (EI) score presented for the various categories covered under ICAO's Universal Safety Oversight Audit Programme (USOAP). Multiple countries may be selected at once to compare their respective performance, and users may also compare a country or countries against the current global average in each category.

Developers may also wish to consider accessing the EI data via the [iSTARS API Data Service](#).

Effective Implementation (%)

Category	Global average (%)
Legislation	~70
Organization	~68
Licensing	~72
Operations	~68
Airworthiness	~75
Accident Investigation	~55
Air Navigation Services	~60
Aerodromes	~58

● Global average

Safety Audit Information
USOAP Results Report: 2013-2016
About CMA
 USOAP CMA Flyer
 Frequently Asked Questions
 USOAP CMA Computer-based Training
CMA News
 USOAP recertified to ISO 9001:2008
Archive
 ICAO Journal Article on CMA
 HLSC Presentation
 Newsletter
Other Useful Websites
 iSTARS - restricted
 USOAP CMA Online Framework - restricted
Contact USOAP CMA

2010 2011 2012 2013+

SSCs published on the USOAP CMA online framework

Proposed layout of the SSCs for the public to receive State feedback

2014

Unresolved SSCs to be made available to the public in format and conditions approved by Council

ent ent

USOAP with 45% of

3) USOAP CMA Audit Areas and Protocol Questions (PQs)

USOAP CMA Audit Areas



Primary aviation legislation
and specific operating
regulations (LEG)

Civil aviation organization
(ORG)

Personnel licensing and
training (PEL)
Annex 1

Aircraft operations (OPS)
Annexes 6, 9, 18 and
PANS-OPS

Airworthiness of aircraft
(AIR)
Annexes 6, 7, 8 and 16

Aircraft accident and
incident investigation (AIG)
Annex 13

Air navigation services (ANS)
**Annexes 2, 3, 4, 5, 10, 11, 12,
15 and PANS-ATM**

Aerodromes and
ground aids (AGA)
Annex 14 and PANS-AGA

Protocol Questions (PQs)

- Primary tool used to assess States' safety oversight capabilities, for each CE.
- Enable standardization in the conduct of USOAP CMA activities.
- Percentage of “Satisfactory” PQs is reflected in the EI.
- Evidence-based approach:
 - **Show me.**
 - **Lack of evidence or lack of sufficient evidence = PQ status becomes or remains N/S.**
- N/S PQ generates a finding and since 2014, each finding is PQ-specific.

PQ — Example



PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	CE
4.129	Has the State promulgated regulations for AOC applicants to establish procedures to ensure that the flight manual is updated by implementing changes made mandatory or approved by the State of Registry?	Verify the establishment and implementation of: a) relevant State regulations; b) applicable certification process; and c) operations inspectors' procedures.	STD A6 Part I, 11.1 Part III, Section II, 9.1 GM A6 Part I, Att. E Part III, Att.	CE-2
4.103	Is the organization of the applicant clearly defined? a) duties, responsibilities and lines of reporting are clearly defined; b) functional tasks and lines of reporting are clearly delineated and duly documented?	2) Review exchange of letters with the applicant. 3) Verify that the safety management, quality assurance management and emergency management systems have been: a) established; b) documented; and c) implemented.	STD A6 GM Doc 8335 Part II, C2 Part III, C5	CE-6

PQ asked by auditor

Examples of evidence to be presented by State

ICAO References

CE number associated with PQ

PQ Amendment



- MO revises and updates PQs on a periodic basis to:
 - a) reflect the latest changes in ICAO provisions; and
 - b) harmonize and improve PQ references and content.
- Revision of PQs incorporates inputs from:
 - a) States;
 - b) ICAO ANB;
 - c) ICAO ROs;
 - d) USOAP mission team members; and
 - e) external stakeholders.

2017 Edition of the PQs



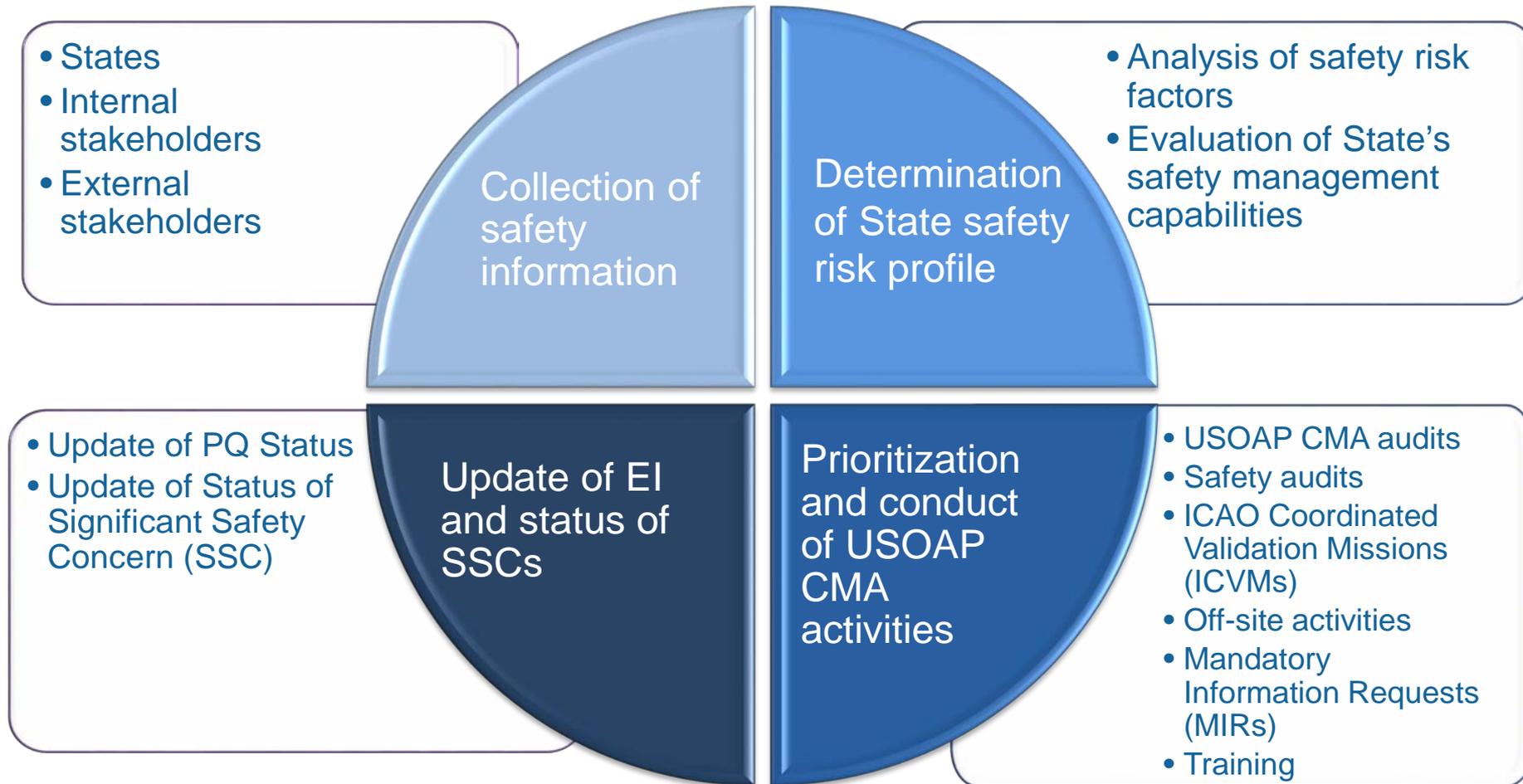
- With the roll-out of Amendment 1 to Annex 19, a 2017 edition of the PQs was developed on the basis of the 2016 edition and excludes aspects related specifically to the State Safety Programme (SSP).
- This 2017 edition of the PQs is posted in the “CMA Library” on the OLF.
(See *EB 2018/4*, 19 January 2018.)
- The 2017 edition **became** applicable for all USOAP CMA activities **starting after 1 June 2018**.

CMA Library



4) USOAP CMA Components

USOAP CMA Components



USOAP CMA Components



Collection of Safety Information



States provide:

- 1) State Aviation Activity Questionnaire (SAAQ);
- 2) Compliance Checklists (CCs) on the Electronic Filing of Differences (EFOD) system;
- 3) Self-assessment; and
- 4) Updated Corrective Action Plans (CAPs).

Collection of Safety Information



Internal stakeholders include:

- 1) ICAO Secretariat Bureaus/Sections; and
- 2) Regional Offices (ROs).

Collection of Safety Information

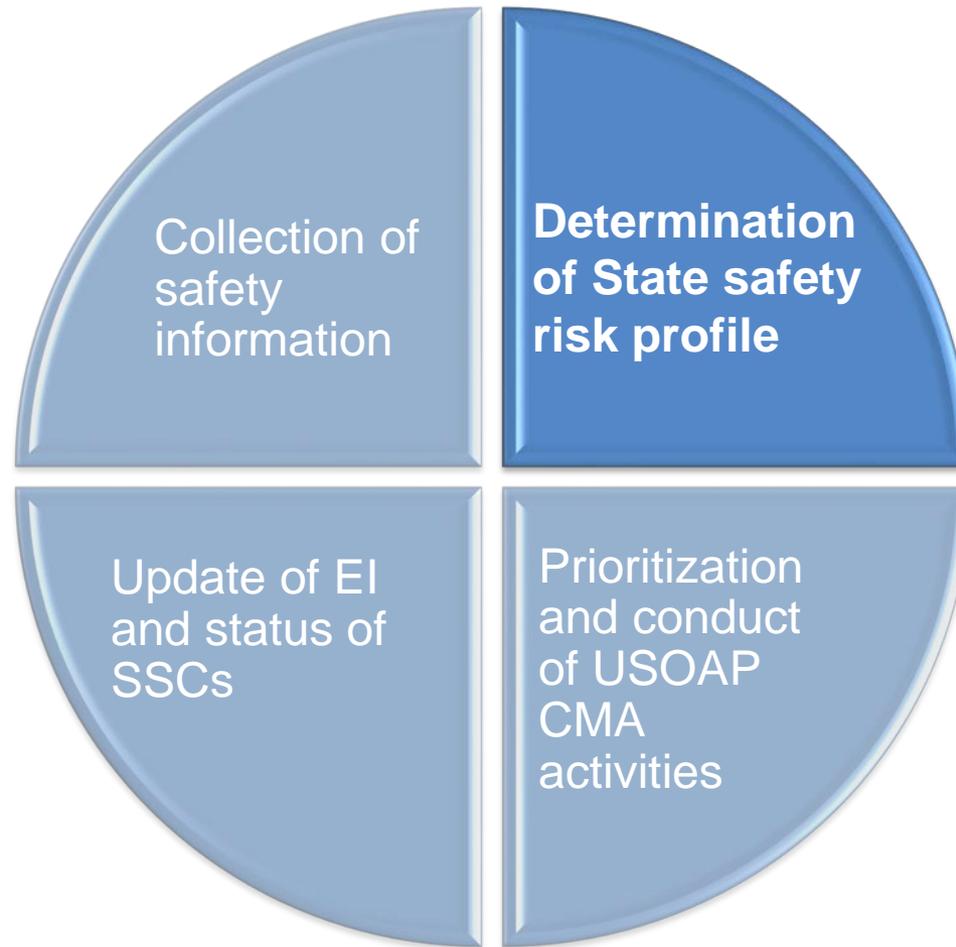


External stakeholders include:

- 1) State civil aviation authorities (e.g. FAA);
- 2) Regional Safety Oversight Organizations (RSOOs) (e.g. EASA); and
- 3) International organizations (e.g. IATA).

Note.— Some of these organizations conduct audit activities that generate safety information used as indicators for the USOAP CMA.

USOAP CMA Components



Main Factors for Determining State Safety Risk Profile



- a) EI (determined through previous USOAP CMA activity);
- b) Existence of SSC(s);
- c) Level of aviation activities in the State for each audit area;
- d) Projected growth of air traffic and aviation activities;
- e) State's capability to submit CAPs acceptable to ICAO;
- f) Level of progress made by State in implementing CAPs;
- g) Major changes in organizational structure of State's CAA;
- h) Ongoing or planned assistance projects;
- i) State's progress in achieving GASP objective on safety management;
- j) Air navigation deficiencies; and
- k) Regional Office (RO) mission reports.

USOAP CMA Components



Main Activities under USOAP CMA



Activity	On- or Off site	Description	Remarks
CMA audit	On-site	To conduct systematic and objective assessment of a State's safety oversight system	Can be full- or limited scope.
ICVM	On-site	To collect and assess evidence of a State's effective correction of previously identified findings (in one or more audit areas).	Collected evidence is reviewed and validated at ICAO HQ (OAS).

Main Activities under USOAP CMA (cont.)

Activity	On- or Off site	Description	Remarks
Off-site validation activity	Off-site	To assess a State's effective corrective actions addressing previously identified findings.	Addresses PQs not requiring on-site activity.
Integrated validation activity (IVA)	Hybrid	<ul style="list-style-type: none"> • Limited scope, integrated within scheduled mission in a State by ICAO or safety partners*. • On-site collection and review of evidence by SMEs. • All collected evidence reviewed by ICAO HQ (OAS) as part of an off-site validation activity. <p><i>* Organizations which provide technical support to USOAP CMA activities on basis of formal agreement with ICAO (e.g. EASA).</i></p>	Associated PQs are identified at ICAO HQ (OAS) based on State's CAP performance.

Prioritization and Conduct of USOAP CMA Activities



MO prioritizes CMA activities in States based on:

- a) State's safety risk profile;
- b) Approved MO budget; and
- c) Available MO resources.

Criteria Used to Select a State for:



CMA Audit	ICVM
State's safety risk profile	
Information submitted by State through PQ self-assessment	
Recommendations from RO or ANB sections	
Information shared by recognized international organizations	
Regional balance	
Date of last audit	State's readiness (via reported progress in CAP implementation)
Significant changes in any audit area within State's civil aviation system	State's progress in resolving identified SSCs

Criteria Used to Select a State for an *Off-Site Validation Activity*



- 1) State has PQ findings associated with eligible PQs (most of the PQs from CEs 1 to 5);
- 2) Most (about 75%) of the State's corresponding CAPs, for the audit area considered, meet the following three conditions:
 - a) CAPs fully address the corresponding PQ findings;
 - b) CAPs are reported by the State as fully implemented; and
 - c) The State has submitted all relevant evidence for the corresponding PQs through the OLF; and
- 3) Information submitted by State through PQ self-assessment.

Conduct of USOAP CMA Activities — Scope



Factors determining scope	ICVM	CMA Audit
Level of aviation activity in the State	✓	✓
Any changes to the State's system		✓
Acceptability of CAPs	✓	
Level of progress reported by the State in CAP implementation	✓	
State's self-assessment, including submitted evidence	✓	✓
Request by State (cost-recovery activity)	✓	✓
Availability of resources	✓	✓

Conduct of USOAP CMA Activities — Duration and Team Composition



Factors determining duration and team composition	ICVM	CMA Audit
Scope	✓	✓
Complexity of the State's system	✓	✓
Number of Not-Satisfactory PQs to be addressed	✓	
Other factors, such as State's official language	✓	✓

Six Criteria for a Good CAP (“RCDSRC”)



- 1) **Relevant:** CAP addresses the *issues* and *requirements* related to the finding and corresponding PQ and CE.
- 2) **Comprehensive:** CAP is *complete* and includes *all elements or aspects* associated with the finding.
- 3) **Detailed:** CAP outlines implementation process using *step-by-step approach*.
- 4) **Specific:** CAP identifies *who will do what, when* and in coordination with other entities, if applicable.
- 5) **Realistic:** In terms of *contents* and *implementation timelines*.
- 6) **Consistent:** In relation to *other CAPs* and with the *State's self-assessment*.

Off-Site Validation Activity



- CAPs related to the majority of PQ findings associated with CEs 6, 7 and 8 (collectively known as the “Implementation” CEs) do not qualify for an off-site validation activity.
- Such CAPs must be assessed and validated through an on-site activity.

USOAP CMA Components



Update of EI



EI calculation:

$$\text{Overall EI (\%)} = \frac{\text{Number of Satisfactory PQs}}{\text{Total Number of Applicable PQs}} \times 100$$

Update of EI



- The validation of collected safety information enables ICAO to continuously update a State's EI.
- State's EI is reported on the OLF and on iSTARS 3.0.

Mandatory Information Request (MIR)



- A MIR is issued by MO under the USOAP CMA process when concerns are raised by internal and/or external stakeholders about aspects of a State's safety oversight system.

When can a MIR be issued?

Generally, MIRs have been issued for one or more of the following instances (**but also not limited to these instances**):

- a) Indication of concerns raised by internal and/or external stakeholders about a State's safety oversight capabilities;
- b) Major changes in a State's safety oversight system;
- c) Evidence indicating that potential deficiency or an SSC may exist and additional information is required; and
- d) Concerns raised about a State's lack of compliance in the conduct of its aviation activities; e.g. in the process of an aircraft accident or incident investigation.

State's Response to a MIR



- States are required to respond to a MIR.
- Failure by a State to respond to a MIR with:
 - a) complete, clear and relevant information addressing the associated PQs and/or*
 - b) within the specified timeframe*will result in a **PQ finding** and/or **SSC** for the State.
- In the absence of response by State, the status of all associated PQs becomes Not Satisfactory.

MIR Timelines

- State will have *one month* from MIR issue date to respond to the MIR.
- No deadline extension will be granted by OAS/MO in case of serious safety concerns.
- Once State submits MIR response that is acceptable to ICAO, ICAO starts review of MIR response.
- MIR is closed once ICAO completes review of MIR response.
- MIR report production process is then launched.

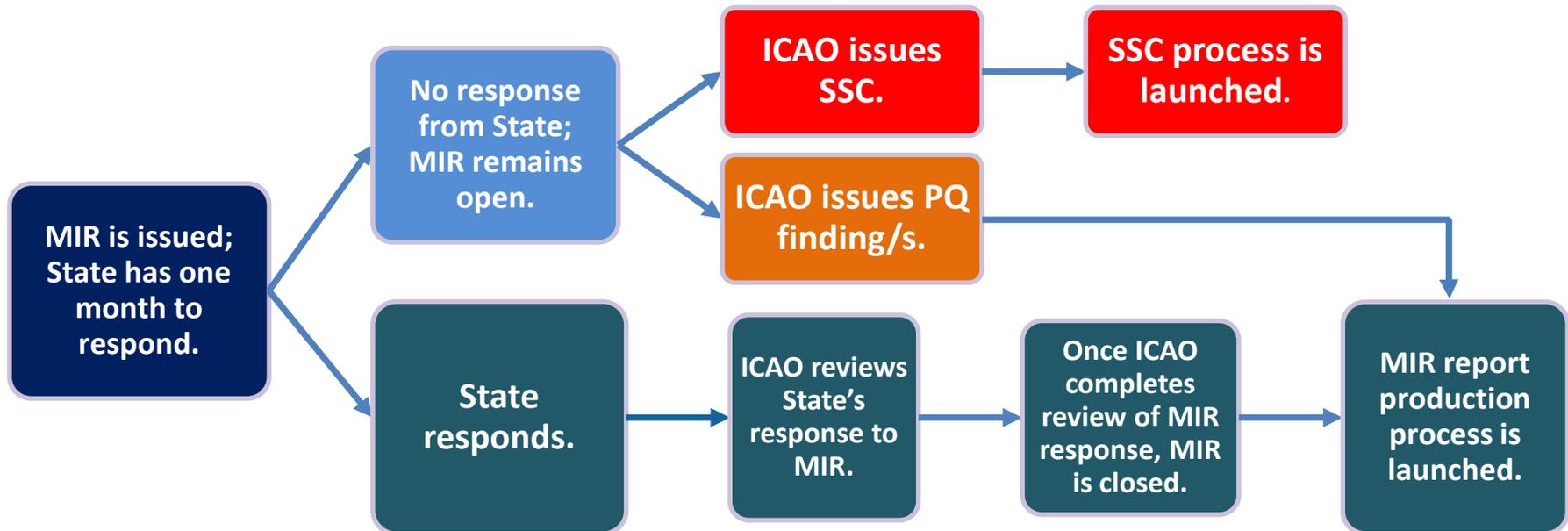
Upon Receipt of State's MIR Response...



- State's response to a MIR is reviewed and assessed by ICAO (i.e. relevant SPOs/TOs of OAS/MO).
- Assessment of information and other related evidences will lead to one or two of the following scenarios:
 - a) no change in status of associated PQs; and
 - b) change in status of associated PQ/s and a MIR Report is produced, and/or
 - c) in the most serious cases, an SSC is issued and the SSC process is launched.

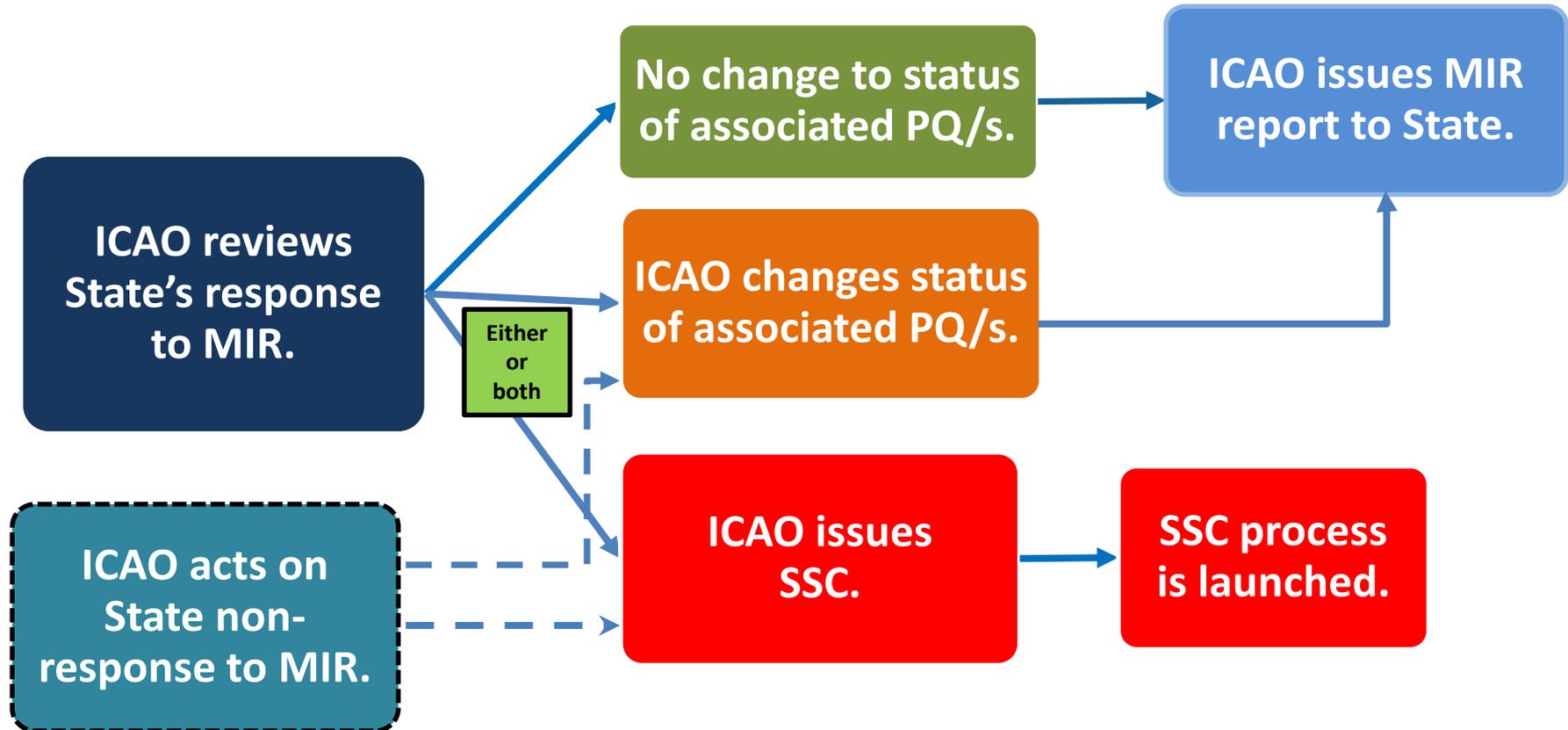
Graphic Summary of MIR Process (1)

Step 1 — A MIR is issued...



Graphic Summary of MIR Process (2)

Step 2 — MIR Review and Report Production Process



PQ Status Change



Status of PQs can only be changed following completion of a USOAP CMA activity, namely:

- 1) CMA audit,
- 2) ICVM,
- 3) Off-site validation activity,
- 4) IVA, or
- 5) MIR.

Significant Safety Concerns (SSCs)

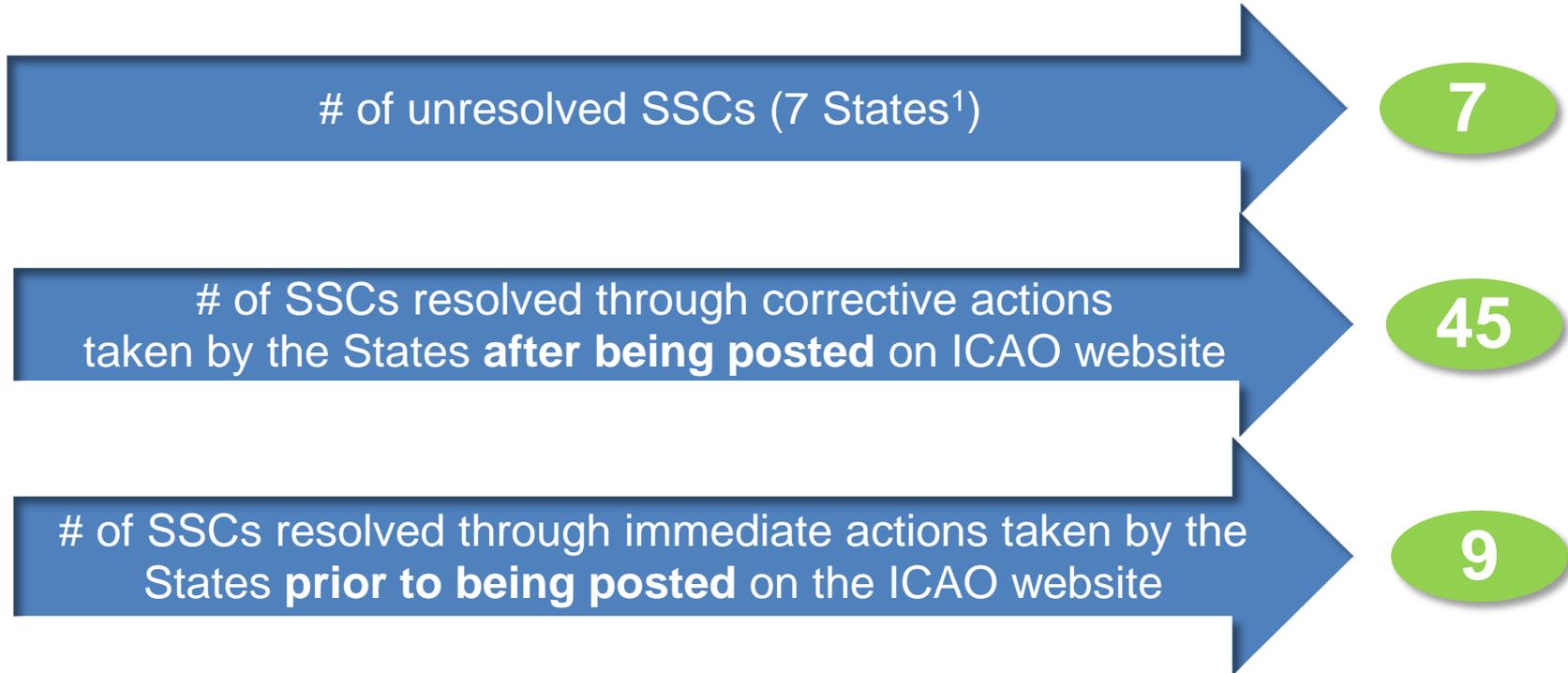


Definition of an SSC

“An SSC occurs when the audited State allows the holder of an authorization or approval to exercise the privileges attached to it, although the minimum requirements established by the State and by the Standards set forth in the Annexes to the Chicago Convention are not met, resulting in an immediate safety risk to international civil aviation.”

Reference: *EB 2010/7* dated 19 February 2010

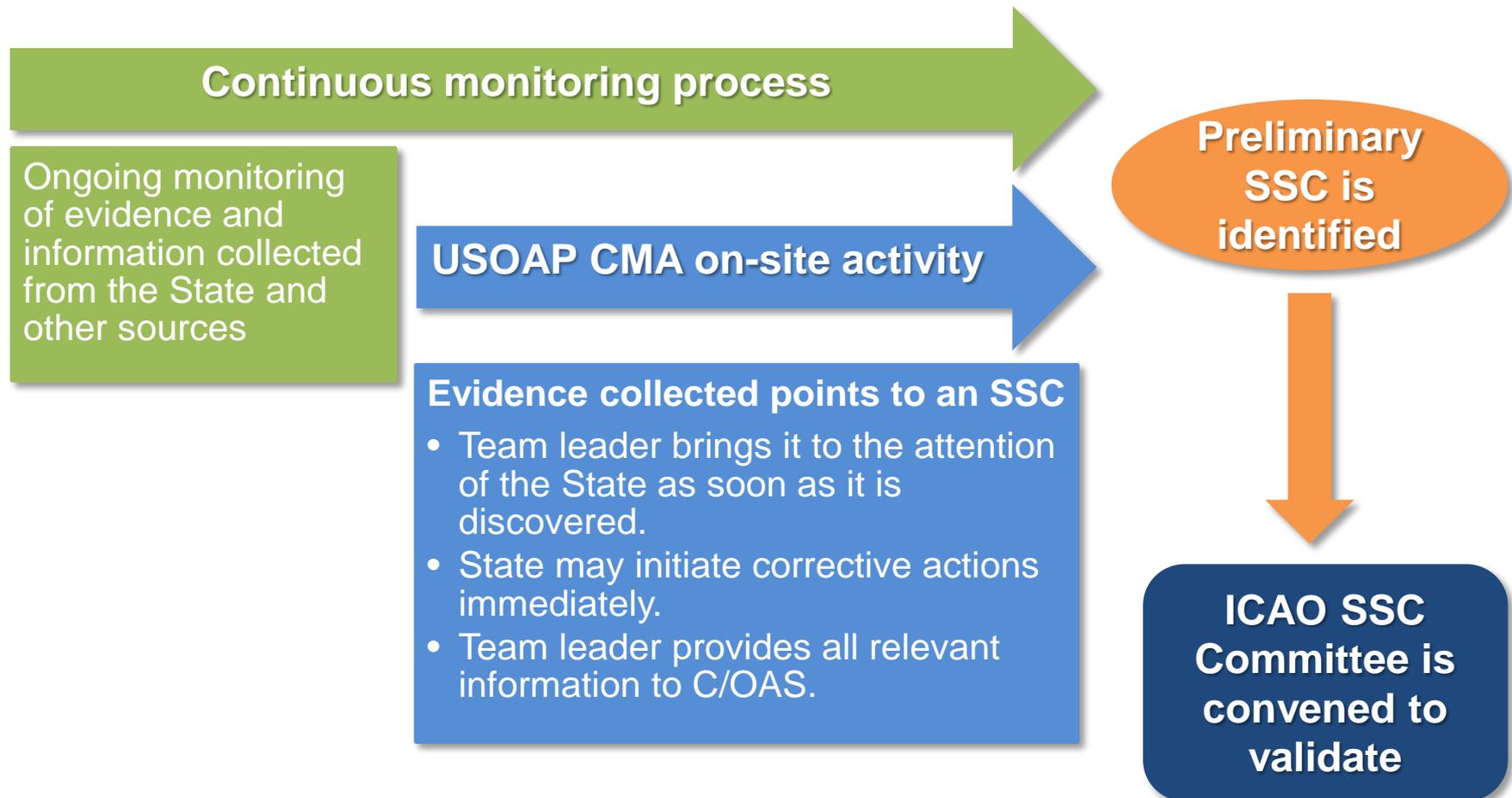
Status of SSCs



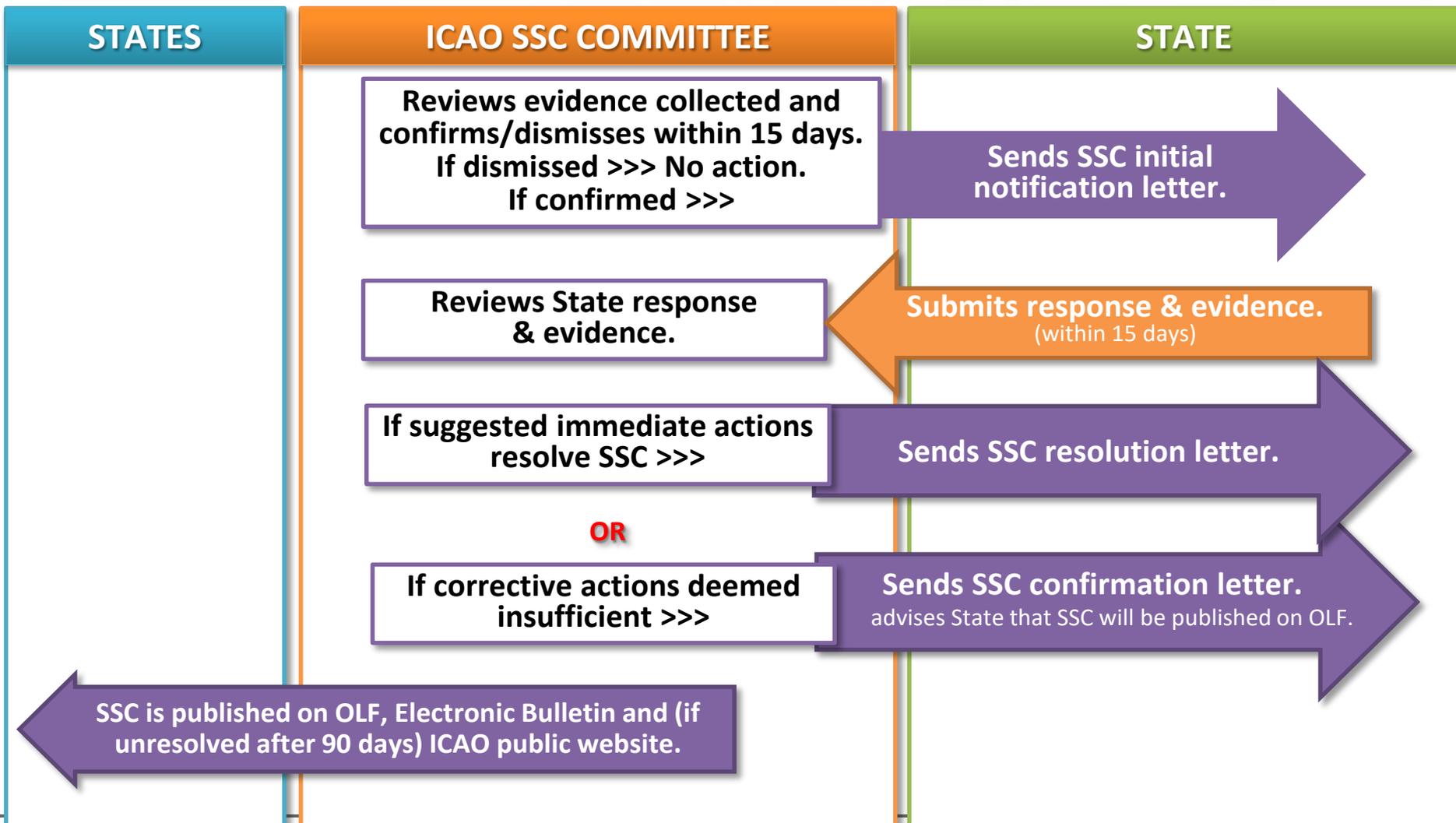
Note 1.— 7 States include 5 OECS Member States which are also ICAO Member States that have signed MoU on USOAP CMA with ICAO.

Note 2.— Information was last updated on 10 February 2019.

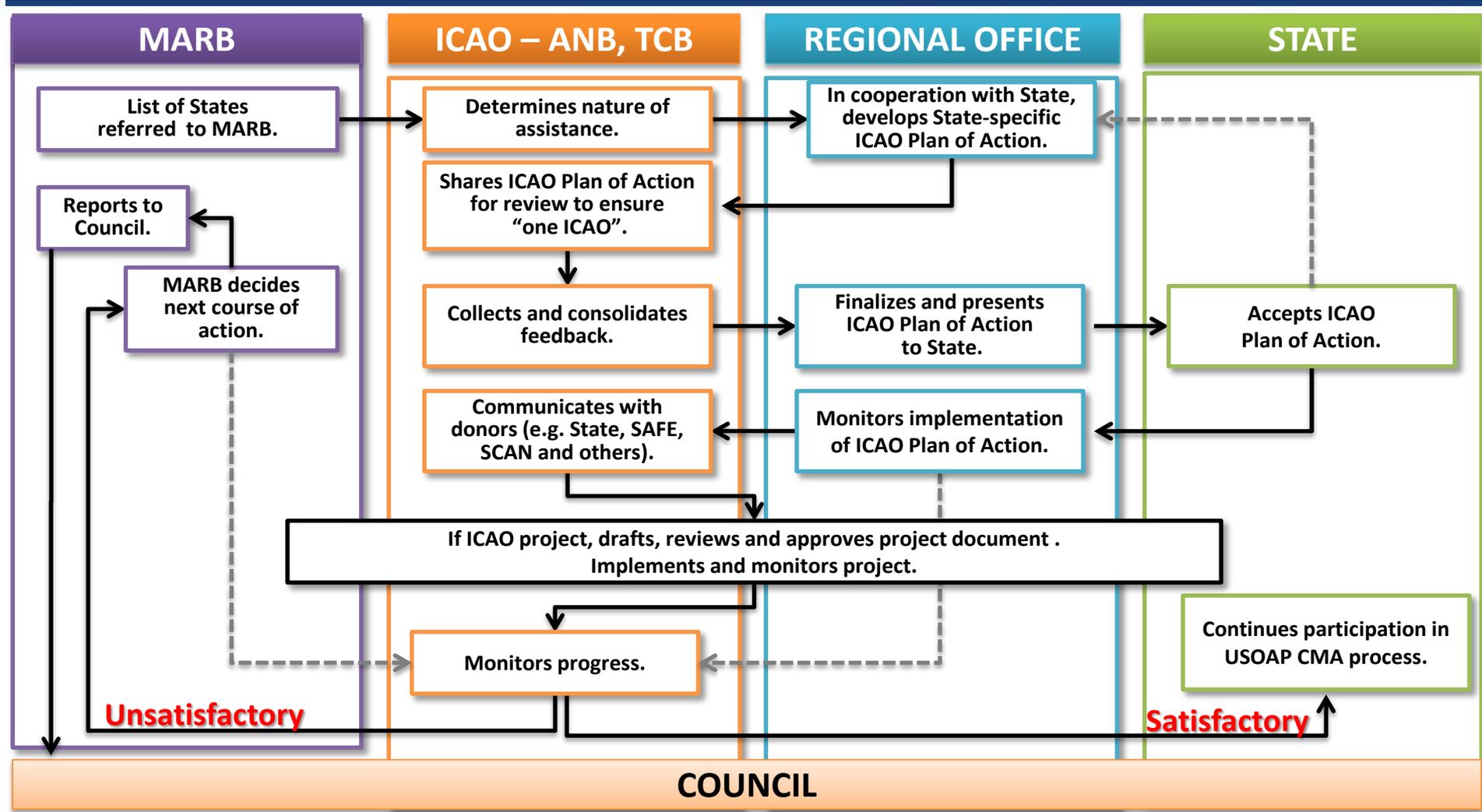
SSC Mechanism: Identification



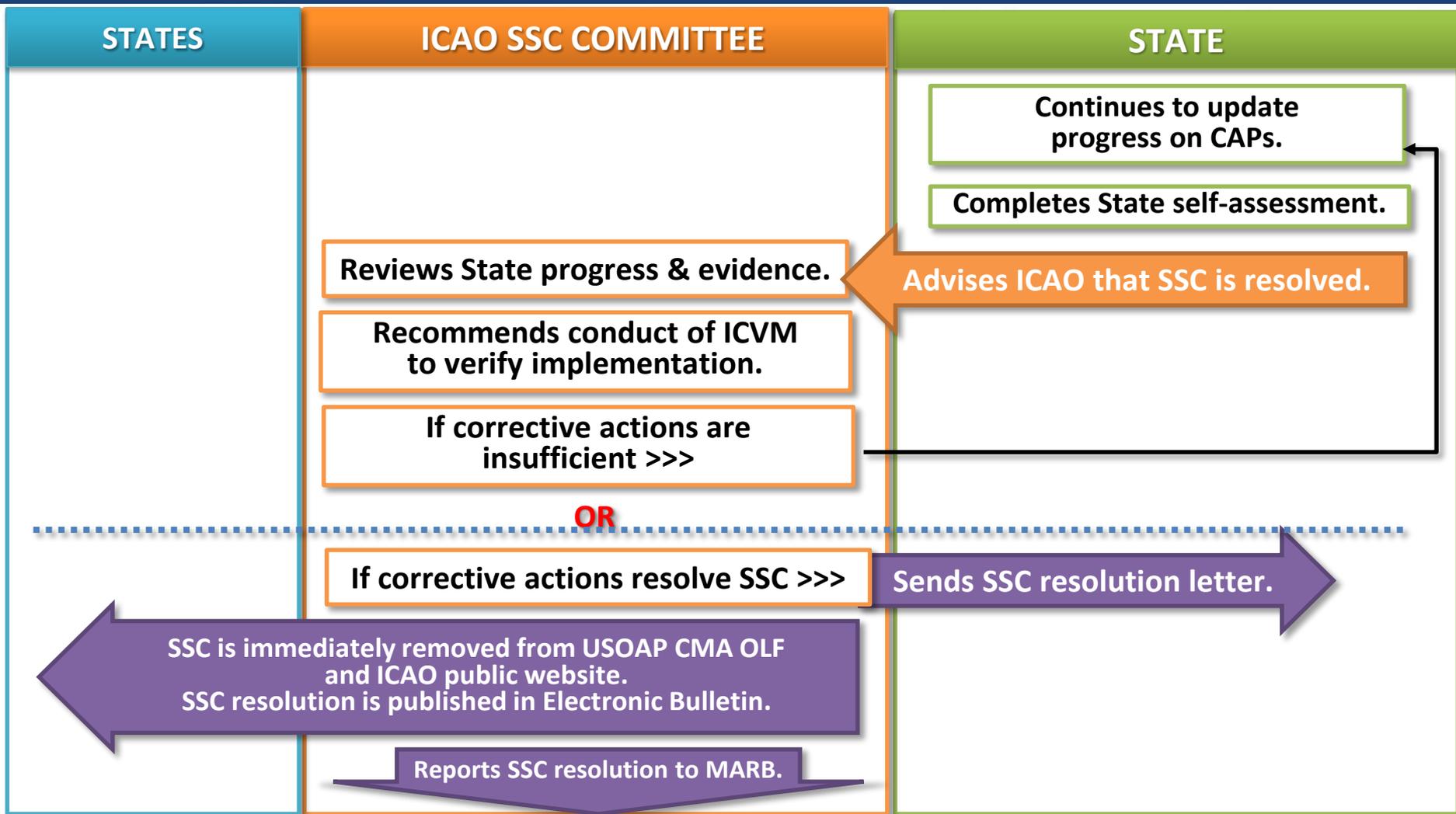
SSC Mechanism: Notification



SSC Mechanism: ICAO Plan of Action



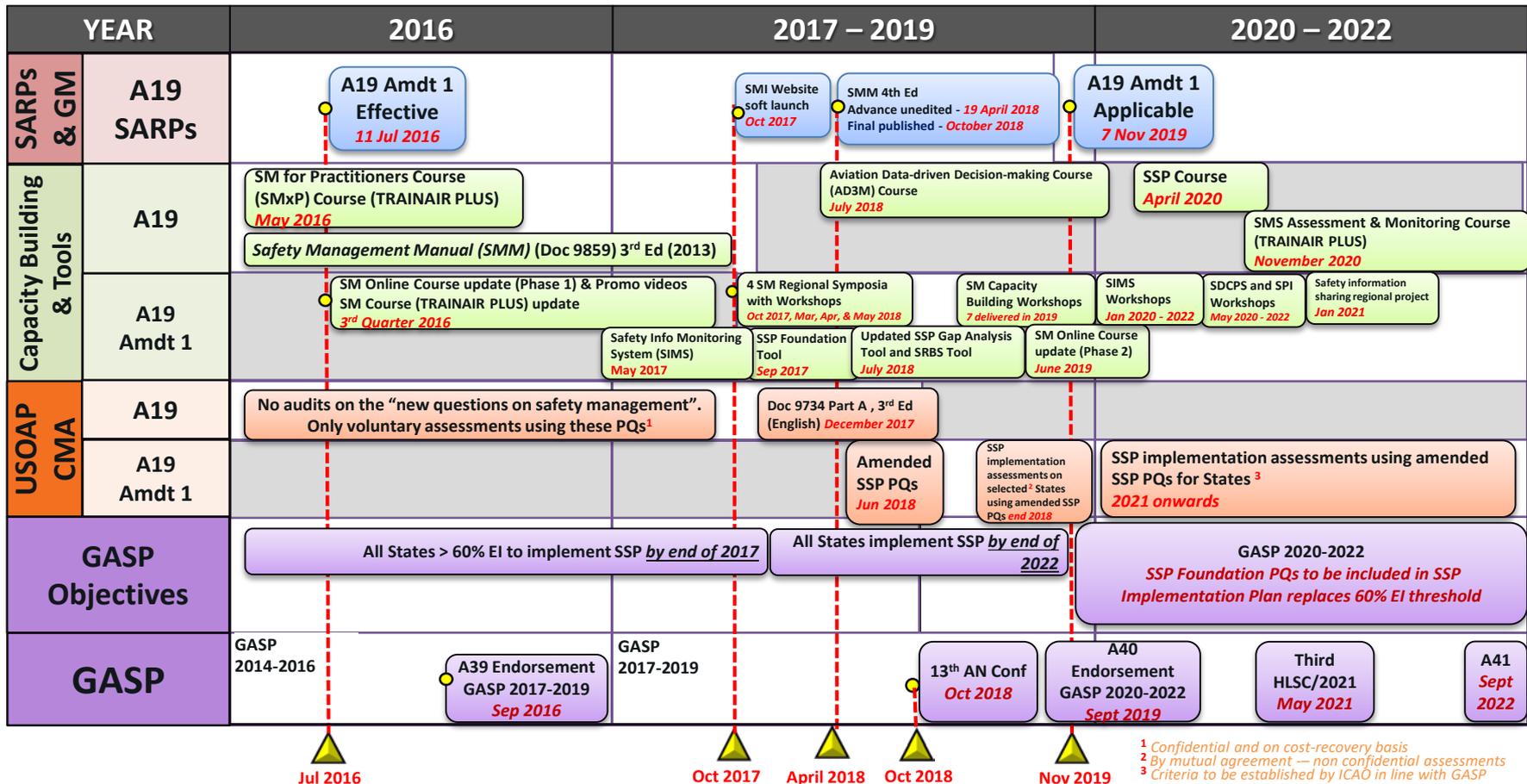
SSC Mechanism: Resolution



5) Roll-out of SSP Implementation Assessments (SSPIAs) under USOAP CMA

(tentative information,
may be subject to amendments)

ICAO Activities in support of Safety Management implementation



¹ Confidential and on cost-recovery basis
² By mutual agreement — non confidential assessments
³ Criteria to be established by ICAO in line with GASP

Amended SSP-related PQs

- *Reflect* Annex 19 Amdt 1, SMM 4th edition and lessons learnt from the voluntary assessments conducted.
- *Form* a dedicated list of PQs (complementing the PQs on “core” safety oversight and investigation functions).
- *Are not linked to Critical Elements (CEs)* but rather to the applicable SSP component (e.g. State Safety Risk Management, State Safety Assurance and State Safety Promotion).
- *Are not assessed* as “satisfactory/non-satisfactory”, but in terms of *progress achieved*.
- *Are supported by references* from ICAO manuals.
- *Are broken down into 8 areas*: GEN (SSP general aspects), SDA (safety data analysis), PEL, OPS, AIR (AMO aspects only), ANS (ATS aspects only), AGA, and AIG.

SSP Implementation Assessments



- *Complement*, and *do not impact*, the State's Effective Implementation (*EI*) score.
- Do not generate findings, nor require the State to submit a "corrective action plan" (CAP).
- Are conducted by a *limited pool of assessors*, to ensure consistency.
- Use the SSP-related PQs in selected audit areas (e.g. GEN + SDA + OPS + ANS + AIG).

Plans for Phase II of SSPIAs

- In 2020, ICAO will start developing guidance to support the determination of maturity levels (0: not present and not planned, 1: not present but being worked on, 2: present, 3: present and effective, 4: present and effective for years and in continuous improvement) for each PQ.
- The target is to start using in 2021 the SSP-related PQs including guidance to support the determination of maturity levels. This will enable a quantitative measurement of the level of progress achieved by the State in SSP implementation.
- The first SSPIA to be conducted under Phase 2 will start no earlier than 6 months after the publication of the assessment tool (i.e. SSP-related PQs + guidance to support the determination of maturity levels) on the OLF.

Draft criteria to prioritize the scheduling of SSPIAs



- Level of implementation of SSP Foundation PQs and evidence of:
 - A robust and sustainable safety oversight system and aircraft accident/serious incident investigation system; and
 - An effective mandatory safety reporting system, State aircraft accident and incident database and safety analyses; and
- Effective completion and updates of PQ self-assessment by the State (for all PQs, including SSP-related PQs).

6) States' Main Obligations under USOAP CMA

As per the USOAP CMA MOU and by using the OLF, States shall, in particular:

- Continuously update their SAAQ and CCs/EFOD;
- Continuously update their CAPs and PQ status (self–assessment), providing all related evidence; and
- Reply promptly to MIRs sent by ICAO.

Review



- 1) Monitoring and Oversight (MO)
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7) USOAP CMA Computed-Based Training (CBT)

As per EB 2011/44, the computer-based training (CBT) was launched to:

- Provide participants with a thorough understanding of the USOAP CMA methodologies and the essential knowledge required to participate in USOAP CMA activities; and
- Serve as an opportunity for States to enhance the competencies of their aviation safety personnel in the areas addressed by USOAP CMA.

USOAP CMA CBT



- Per Assembly Resolution A37-5, States and recognized organizations are called upon to nominate experts for secondment to ICAO on a long- or short-term basis to support USOAP CMA.
- For State-nominated experts who meet stated qualifications and experience criteria for the various audit areas (per *SL AN19/34-15/35*, 13 May 2015), ICAO will waive their CBT fees.
- More information available at:
<https://www.icao.int/safety/CMAForum/Pages/USOAPCMA-CBT.aspx>.



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THANK YOU