



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 updated overview of the USOAP CMA methodology.

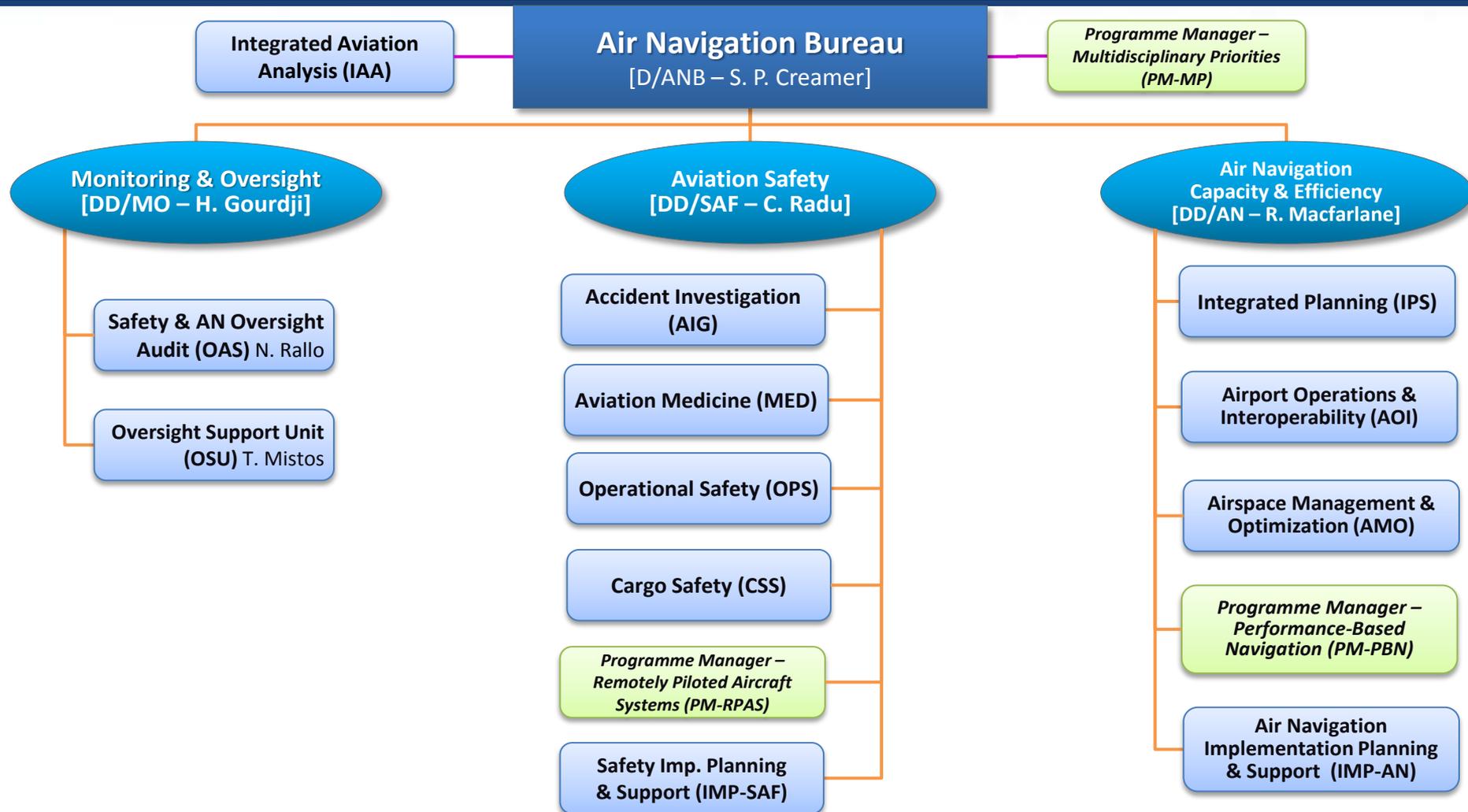
Outline



- 1) USOAP CMA
- 2) 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)
- 3) Critical Elements (CEs) of the Safety Oversight System
- 4) USOAP CMA Audit Areas
- 5) Annex 19 — *Safety Management*
- 6) USOAP CMA Computer-Based Training (CBT)
- 7) Report on USOAP CMA Results: Jan 2013 – Dec 2015

USOAP CMA

ANB Organizational Chart



USOAP CMA



Continuous Monitoring
(Online Framework)

AUGUST 2013

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 validation
activities



Reports, analyses
and working papers



Training and
workshops

USOAP CMA Components

USOAP CMA Components



- States
- Internal stakeholders
- External stakeholders

Collection of safety information

- Analysis of safety risk factors
- Evaluation of State's safety management capabilities

Determination of State safety risk profile

- Mandatory Information Requests (MIRs)
- Protocol Question (PQ) findings
- Significant Safety Concerns (SSCs)
- Corrective Action Plans (CAPs)

Update of EI and status of SSCs

Prioritization and conduct of USOAP CMA activities

- USOAP CMA audits
- Safety audits
- ICAO Coordinated Validation Missions (ICVMs)
- Off-site validation activities
- Integrated Validation Activities (IVAs)
- Training

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 CAPs.

Collection of Safety Information



Internal stakeholders include:

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

Collection of Safety Information

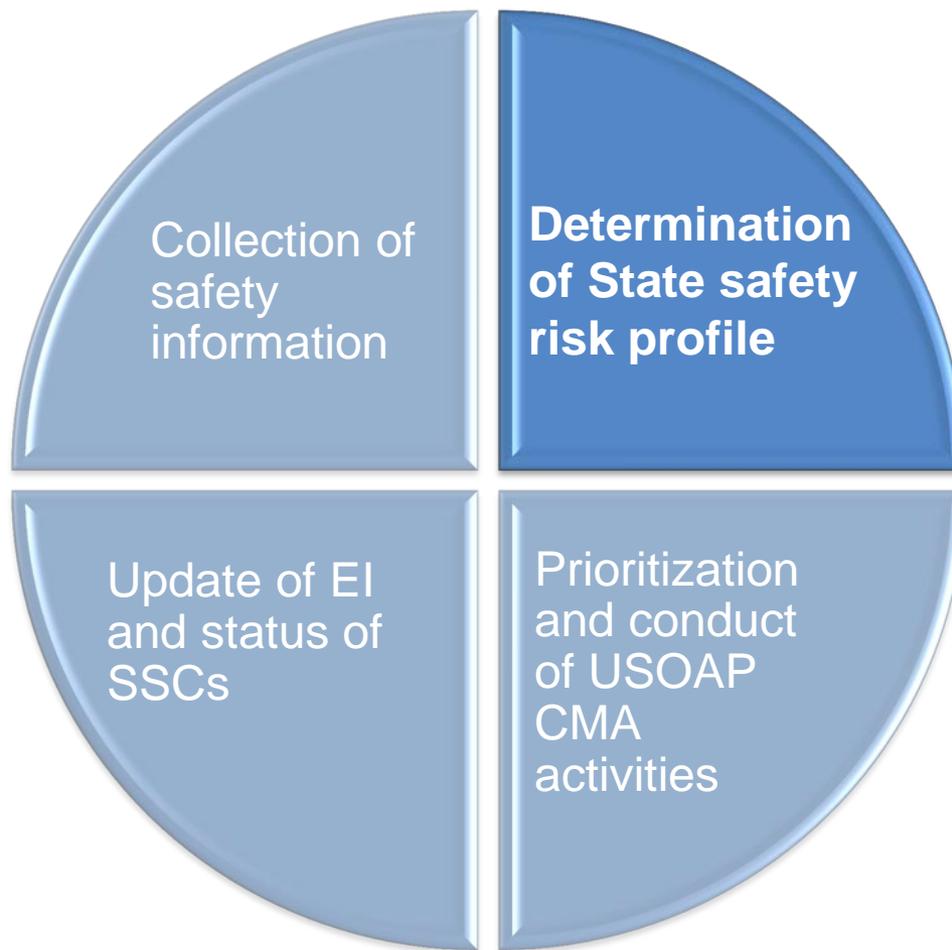


External stakeholders include:

- 1) Airports Council International (ACI);
- 2) Civil Air Navigation Services Organisation (CANSO);
- 3) European Aviation Safety Agency (EASA);
- 4) European Commission (EC);
- 5) EUROCONTROL;
- 6) Interstate Aviation Committee (IAC);
- 7) International Air Transport Association (IATA); and
- 8) other national, regional, supranational and international organizations recognized by ICAO.

Note.— These organizations conduct activities that generate safety information.

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.

LEI versus Traffic

Description

The below chart shows LEI versus commercial scheduled departures in 2011 per State for a defined group of States.

You can select a group of States from the drop-down menu. If a specific group of States does not exist, you can create that group through the "Manage my groups" section on the left. you can also view the composition of a selected group.

The LEI values may differ slightly from those published in the USOAP audit reports that were published from the period 2006 to 2010 due to changes in the LEI calculation algorithm as well as changes in the protocol question grouping structure performed since the State's audit.

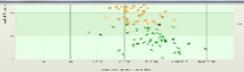
Select a group

WORLD (Merens Marco, 1913 hits)

Show State Names:

[View group composition](#)

[Generate graph](#)



Dataset: LEI
Last updated: 27/01/2013
Items: 188

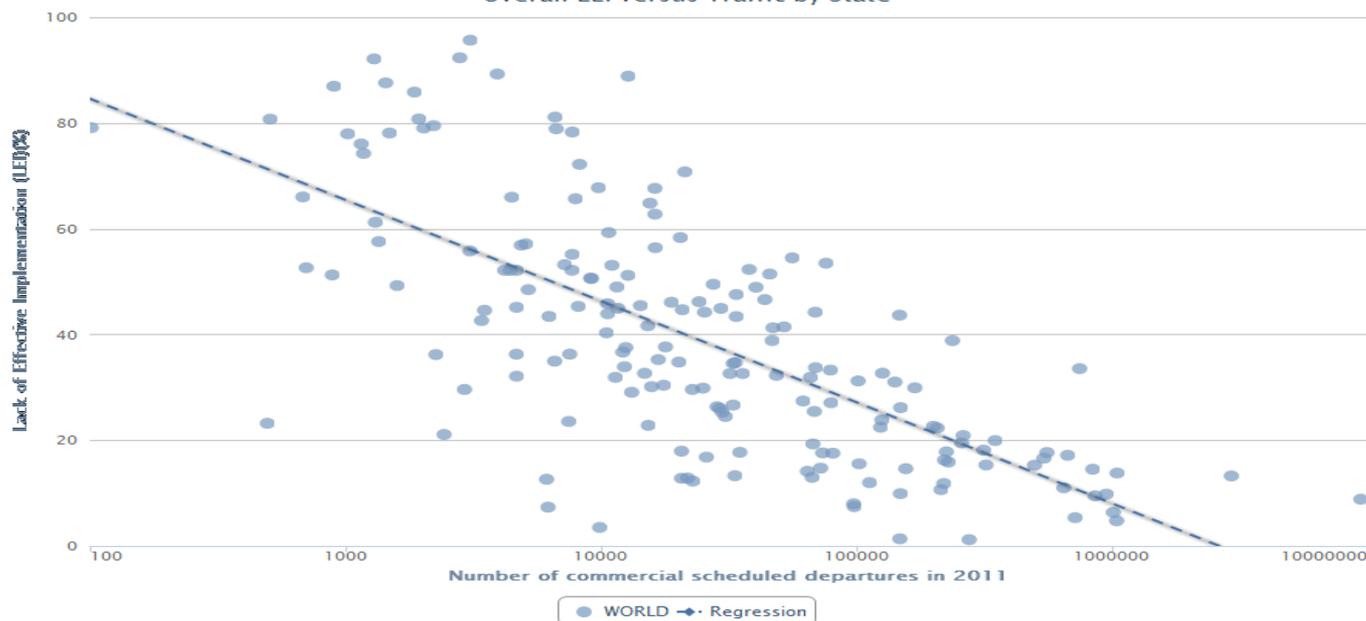
Manage my Groups

Add or modify your custom groups of States.

[Choose your predictor \(s\)](#)

[Build a priority list](#)

Overall LEI versus Traffic by State



Select a group

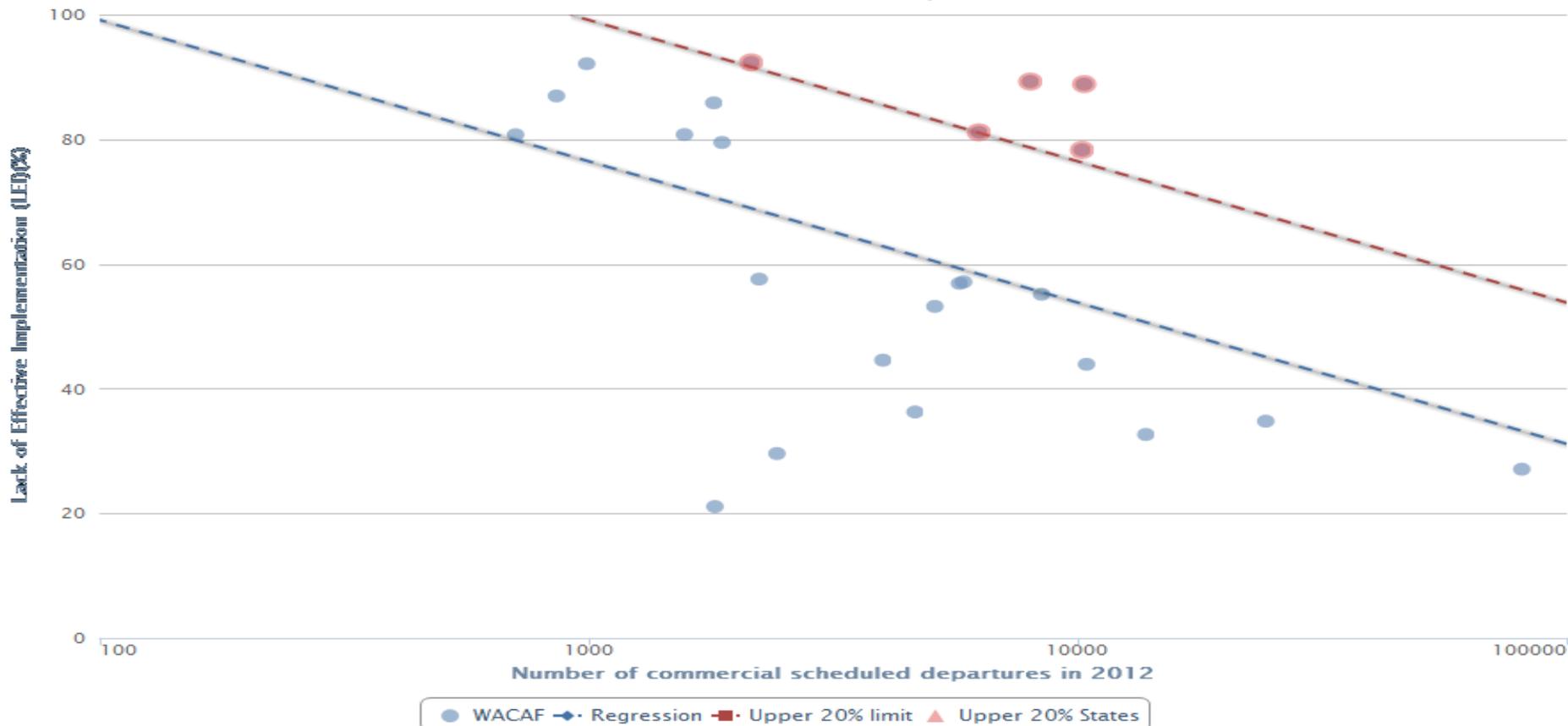
WACAF (Merens Marco, 375 hits)

Show State Names:

[View group composition](#)

[Generate graph](#)

Overall LEI versus Traffic by State



USOAP CMA Components



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) About 75% of 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		✓
CAPs' acceptability	✓	
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	✓	✓

Off-Site Validation Activity



- The objective is to validate CAPs implemented by a State without conducting an on-site activity, i.e. an audit or ICVM.
- This activity is conducted at ICAO HQ.
- To qualify for an off-site validation activity, CAPs should address most of the PQ findings associated with CEs 1 to 5 (collectively known as “establishment” CEs).
- Will be considered only if these three criteria are met:
 - 1) CAPs fully address PQ findings;
 - 2) Most CAPs are fully implemented; and
 - 3) Relevant evidence uploaded by the State on the OLF.

Six criteria for a good CAP (“RCDSRC”)



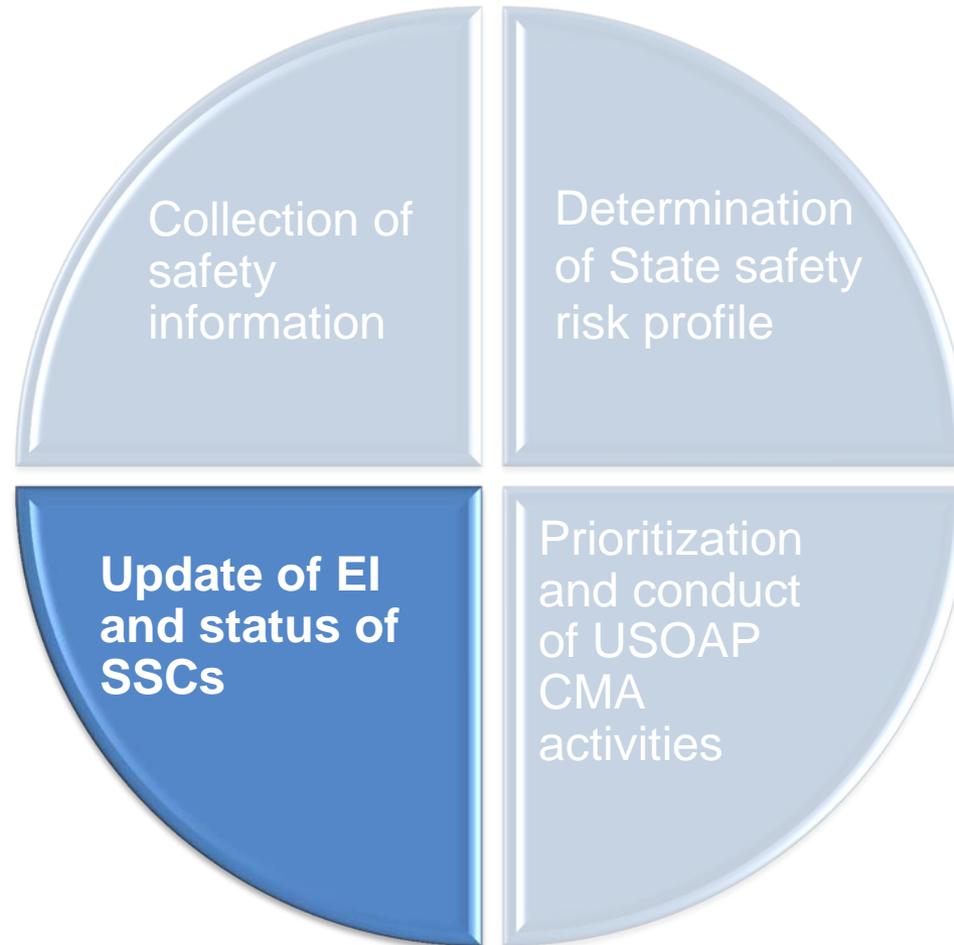
- 1) **Relevant:** CAP addresses the *issues* and *requirements* related to the finding and corresponding PQ and CE.
- 2) **Comprehensive:** CAP is *complete* and includes *all elements or aspects* associated with the finding.
- 3) **Detailed:** CAP outlines implementation process using *step-by-step 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 Online Framework (OLF) and on iSTARS 2.0, i.e. SPACE.

PQ Amendment



- The PQs have been revised and updated and are now applicable following a progressive transition which began in May 2013.
- The implementation of new/amended PQs will result in minor impact to States' EI due to:
 - a) deletion of some PQs,
 - b) addition of new PQs, and
 - c) merging of existing PQs with others.

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 Air Navigation Bureau (ANB),
 - c) ROs,
 - d) USOAP mission team members, and
 - e) external stakeholders.

PQ Amendment



- Latest amendments to the PQs related to Annex 19 provisions have been completed and are published on the OLF.
- Mapping between the previous and new/amended PQs are also available in all areas.

Mandatory Information Request (MIR)



- can be issued by MO when concerns are raised by internal/external stakeholders regarding a State's safety oversight capabilities.
- can lead to a finding or even an SSC.

- States are required to provide status of PQ compliance using the “*Manage State Self-Assessment*” tool on the OLF.
- MO may communicate with States through MIRs to seek additional information on compliance with requirements.

PQ Status Change



- Status of PQs may be changed through the validation process conducted by MO based on:
 - CAPs or other information received from States, supported by appropriate evidence; and
 - Information received from ICAO ROs, recognized organizations and other stakeholders.
- Status of PQs may also change based on information received from States in response to MIRs.

Off-Site vs On-Site Activity



With the new online monitoring activities, MO may review and validate, off-site, some PQs related to CE-1 to CE-5.

However, validation of PQs related to CE-6 , CE-7 and CE-8 will typically require an on-site activity.



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



of unresolved SSCs (8 States)

8

of SSCs resolved through corrective actions taken by the States **after being posted** on ICAO website

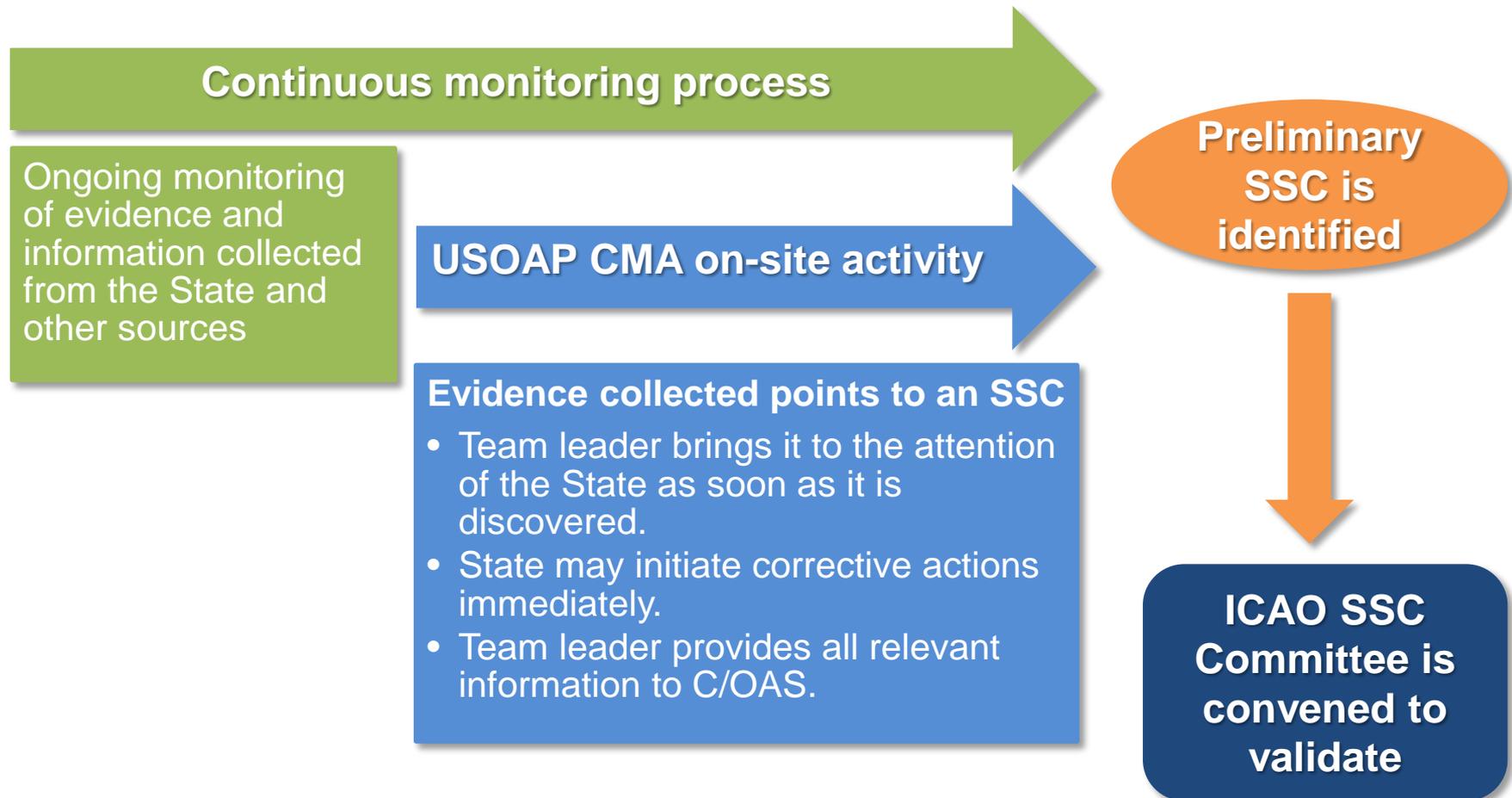
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of SSCs resolved through immediate actions taken by the States **prior to being posted** on the ICAO website

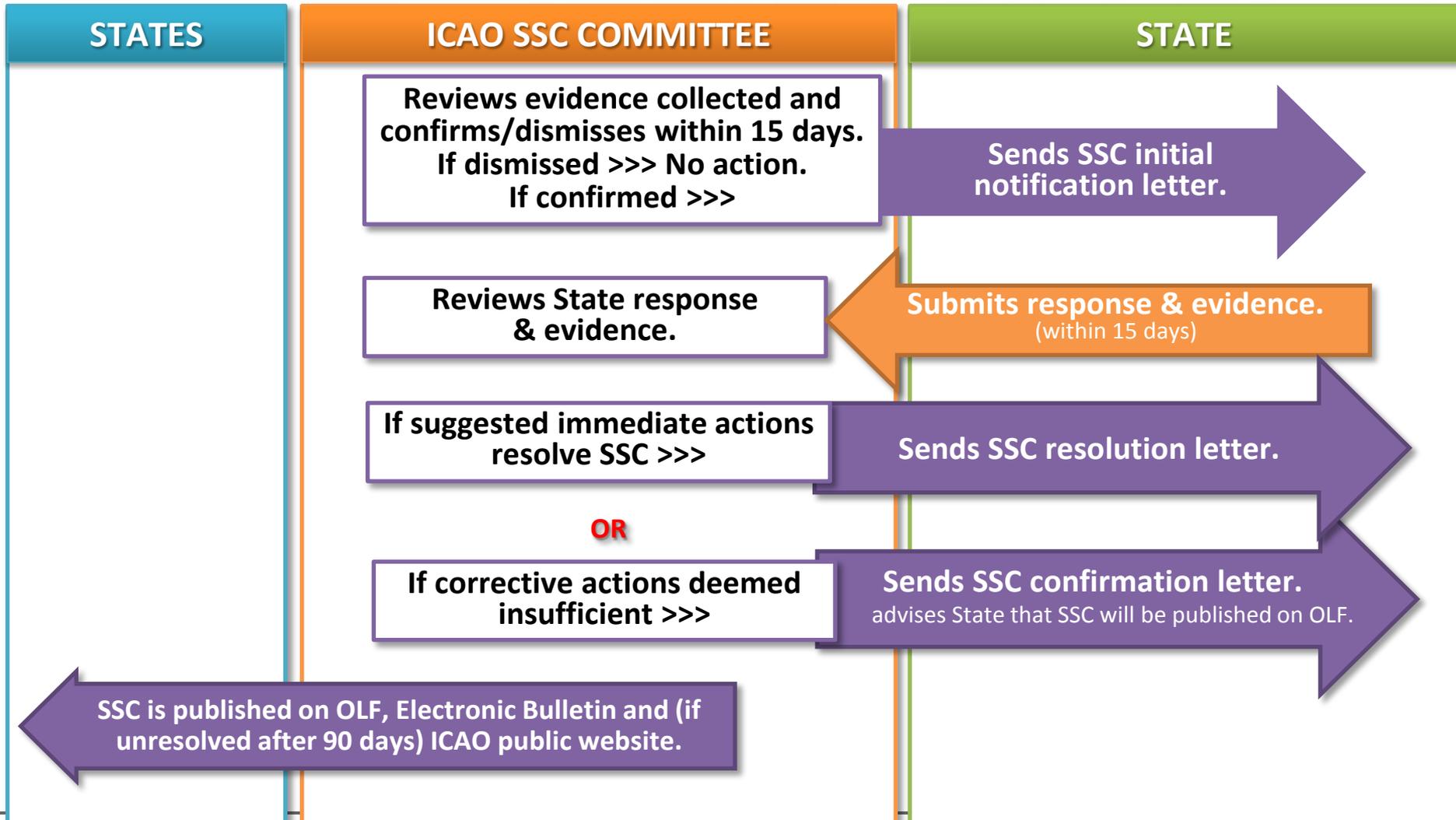
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Note.— Numbers were last modified on 5 July 2016.

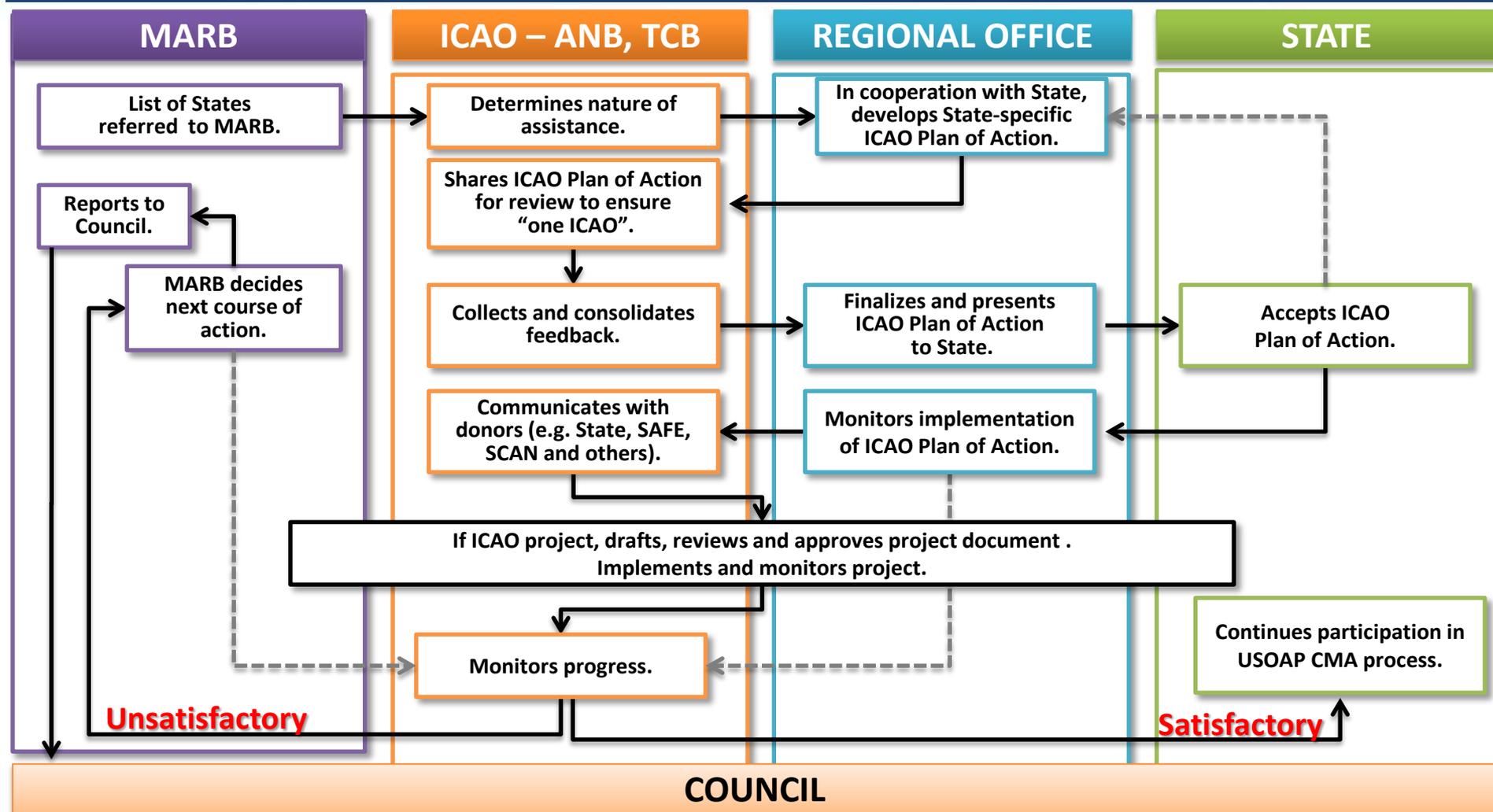
SSC Mechanism: Identification



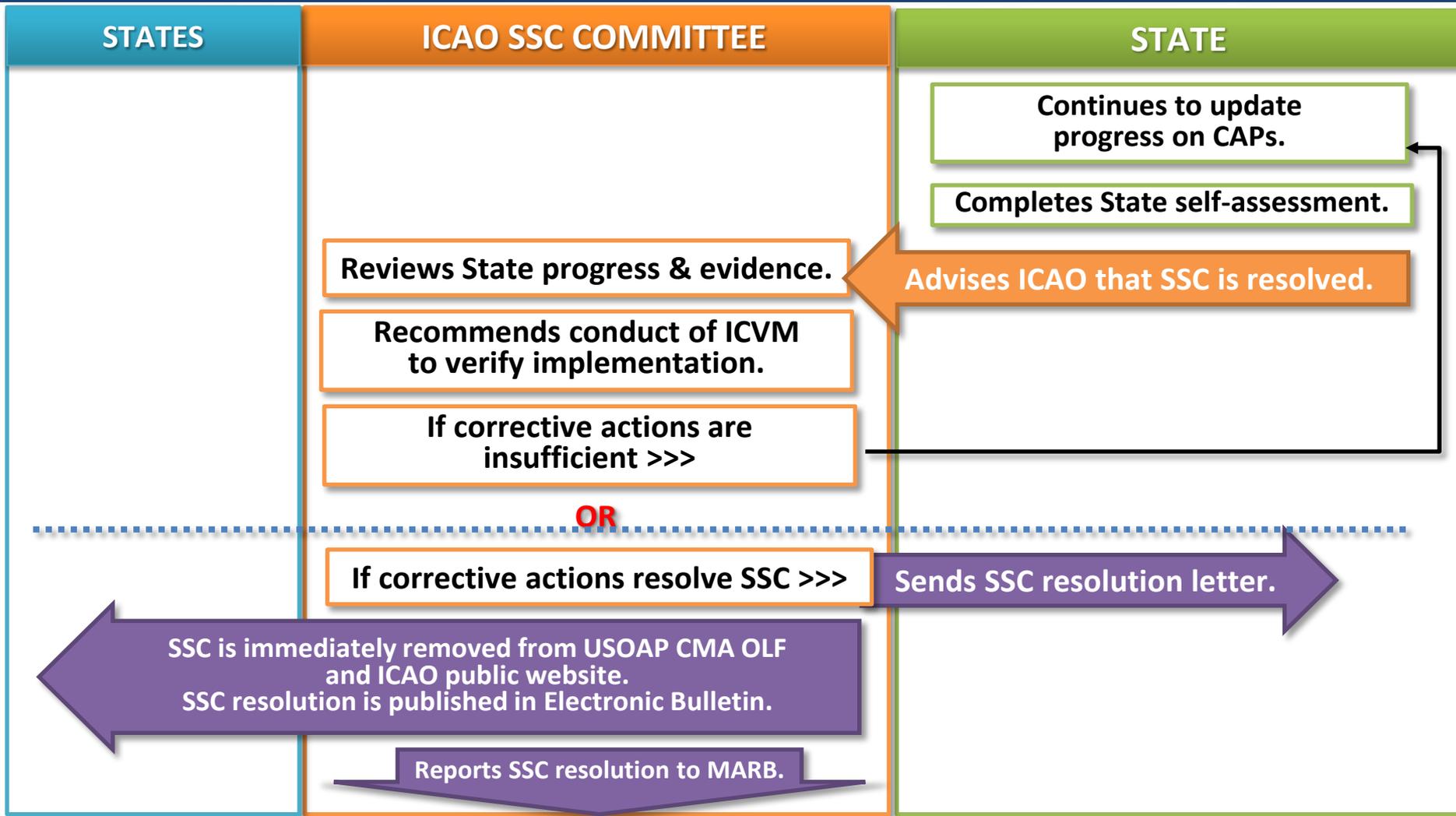
SSC Mechanism: Notification



SSC Mechanism: ICAO Plan of Action



SSC Mechanism: Resolution

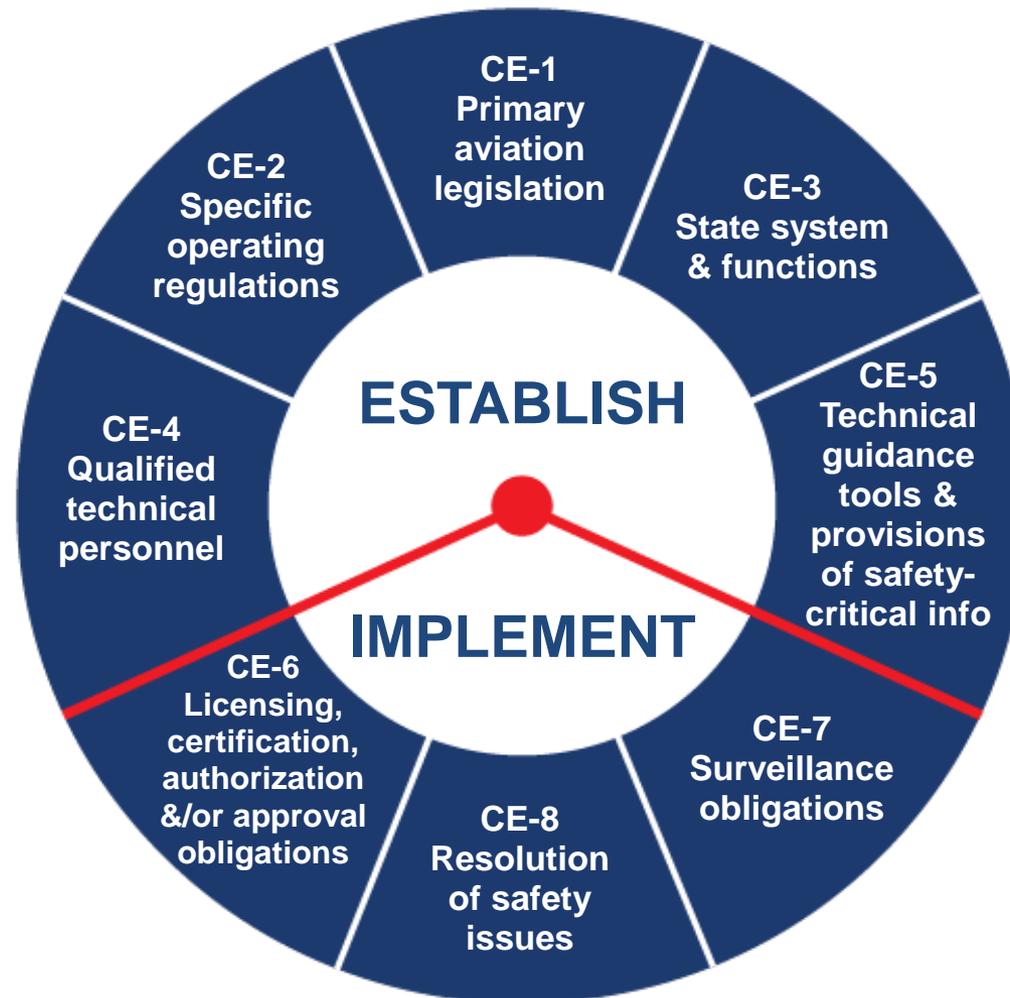


Critical Elements of the Safety Oversight System

ICAO carries out audits and other monitoring activities to determine its Member States' safety oversight capabilities by:

- Assessing the 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) of an Effective Safety Oversight System



CEs of the Safety Oversight System



CE-1: Primary aviation legislation

- The State shall promulgate a comprehensive and effective aviation law, consistent with the size and complexity of the State's aviation activity and with the requirements contained in the Convention on International Civil Aviation, that enables the State to regulate civil aviation and enforce 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 service providers.

CEs of the Safety Oversight System



CE-2: Specific operating regulations

- The State 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.

Note.— The term “regulations” is used in a generic sense and includes but is not limited to instructions, rules, edicts, directives, sets of laws, requirements, policies, and orders.

CEs of the Safety Oversight System



CE-3: State system and functions

- The State shall establish relevant authorities or agencies, as appropriate, supported by sufficient and qualified personnel and provided with adequate financial resources. Each State authority or agency shall have stated safety functions and objectives to fulfill its safety management responsibilities.
- The State shall ensure that inspectors 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.

Note.— In addition, Appendix 5 to Annex 6, Part I, and Appendix 1 to Annex 6, Part III, require the State of the Operator to use such a methodology to determine its inspector staffing requirements. Inspectors are a subset of personnel performing safety oversight functions.

CEs of the Safety Oversight System



CE-4: Qualified technical personnel

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

CEs of the Safety Oversight System



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

- The State 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.
- The State shall provide technical guidance to the aviation industry on the implementation of relevant regulations.

CEs of the Safety Oversight System



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

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

CEs of the Safety Oversight System



CE-7: Surveillance obligations

- The State shall implement documented surveillance processes, by defining and planning inspections, audits, and monitoring activities on a continuous basis, to proactively assure that aviation license, certificate, authorization and/or 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.

CEs of the Safety Oversight System



CE-8: Resolution of safety issues

- The State shall use a documented process to take appropriate corrective actions, up to and including enforcement measures, to resolve identified safety issues.
- The State shall ensure that identified safety issues are resolved in a timely manner through a system which monitors and records progress, including actions taken by service providers in resolving such issues.

CEs of the Safety Oversight System



The definitions of the eight CEs of a safety oversight system are found in Annex 19, Appendix 1.

Guidance on the eight CEs is provided in the *Safety Oversight Manual, Part A — The Establishment of a State's Safety Oversight System* (Doc 9734).

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>

1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013+

STATES

Safety Oversight Information

[Log In](#) | [Lost Username/Password](#) | [Register](#)

[Report a problem >](#)

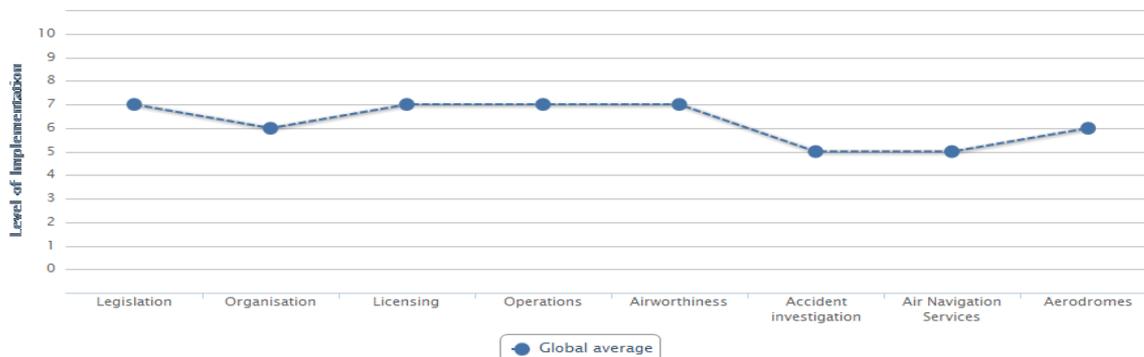
USOAP Continuous Monitoring Approach (CMA) Activities - Results

Description

This information has been generated and updated from the former ICAO Flight Safety Information Exchange (FSIX) website. You can use the search box to find a State and then compare the result of its last USOAP CMA activity with the global average or any other State on the list. The Level of Implementation of each Audit Area is rated from 0 to 10, with 0 being "not implemented" and 10 being "fully implemented".

Level of Implementation

[Reset graph](#)



State	Audit period	Progress validation period	Graph
Albania	01-Dec to 10-Dec-2009		Compare
Algeria	31-May to 09-Jun-2011		Compare
Andorra	26-Feb to 28-Feb-2007		Compare
Angola	26-Nov to 05-Dec-2008	15-Feb to 18-Feb-2010	Compare
Antigua and Barbuda	05-Nov to 14-Nov-2007		Compare
Argentina	25-Nov to 05-Dec-2008		Compare

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USOAP CMA Audit Areas

USOAP CMA Audit Areas



Primary aviation legislation and
civil aviation regulations (LEG)

Civil aviation organization
(ORG)

Personnel licensing and
training (PEL)
Annexes 1 and 19

Aircraft operations (OPS)
Annexes 6, 9, 18, 19 and
PANS-OPS

Airworthiness of aircraft
(AIR)
Annexes 6, 7, 8, 16 and 19

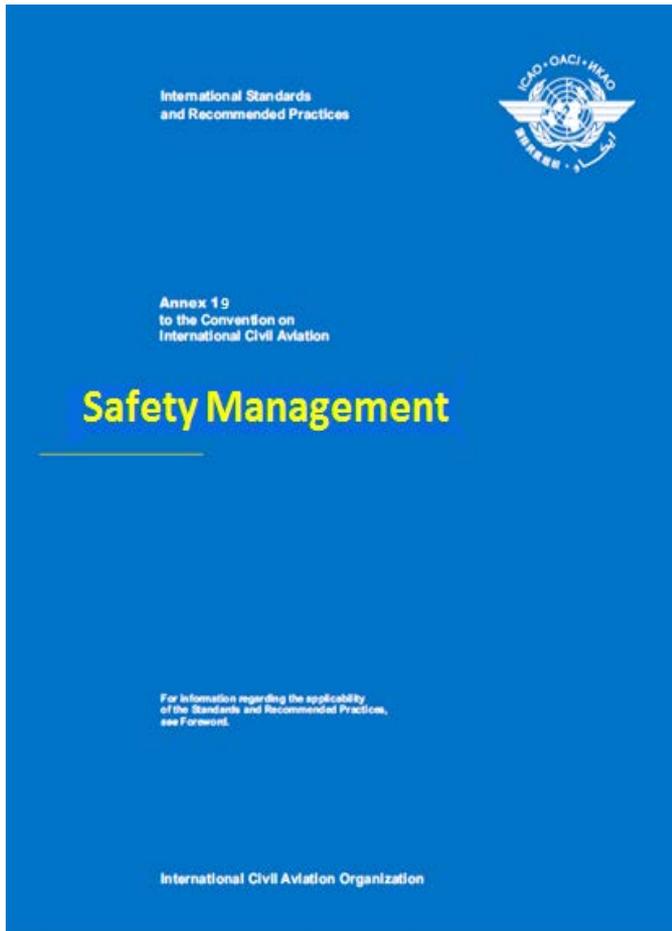
Aircraft accident and
incident investigation (AIG)
Annexes 13 and 19

Air navigation services (ANS)
Annexes 2, 3, 4, 5, 10, 11, 12,
15, 19 and PANS-ATM

Aerodromes and ground
aids (AGA)
Annexes 14 and 19

Annex 19 — *Safety Management*

Annex 19



- Adopted by the Council on 25 February 2013;
- Became effective on 15 July 2013; and
- Became applicable on 14 November 2013.

Annex 19, Chapter 3

State Safety Management Responsibilities



3.1 State safety programme (SSP)

3.1.1 Each State shall establish an SSP for the management of safety in the State, in order to achieve an acceptable level of safety performance in civil aviation. The SSP shall include the following components:

- a) State safety policy and objectives;
- b) State safety risk management;
- c) State safety assurance; and
- d) State safety promotion.

3.1.2 The acceptable level of safety performance to be achieved shall be established by the State.

Annex 19, Chapter 3

State Safety Management Responsibilities



- The sources of the Annex 19 provisions are found in Attachment D to State Letter AN 8/3-13/30, which is posted on the ICAO Safety Management website:
<http://www.icao.int/safety/SafetyManagement/Pages/SARPs.aspx>.
- Additionally, the four components of the SSP framework have been elevated to the status of Standards in order to match the status of the SMS framework.

SMM (Doc 9859, 3rd Edition)



- The *Safety Management Manual* (SMM), 3rd edition and English version, was posted on ICAO-NET on 8 May 2013.
- Substantial enhancements have been introduced, including:
 - Organization risk profile assessment
 - SMS-QMS integration
 - Hazard identification and risk mitigation
 - Hazard prioritization procedure
 - Safety Performance Indicator (SPI) and Acceptable Level of Safety Performance (ALoSP) development
 - SMS audit checklist
 - Risk-based surveillance/inspection
 - Phased SSP and SMS implementation
 - Mandatory and voluntary reporting systems

2014 – 2016

Global Aviation Safety Plan (GASP)



- GASP recognizes the importance of the establishment and maintenance of fundamental safety oversight systems as a prerequisite to the full implementation of an SSP.
- States with mature safety oversight systems have the foundations in place to implement provisions associated with SSP.



2014 – 2016

Global Aviation Safety Plan (GASP)



- GASP calls on those States with mature safety oversight systems to progress toward full implementation of an SSP.
- In the near term, States that have achieved effective implementation (EI) levels of over 60% are to fully implement SSP by 2017, with SSP fully implemented in all Member States by 2022.
- Safety oversight remains the foundation upon which the SSP is built.

SSP Roll-Out under USOAP CMA: *Initial Timelines*



- An Electronic Bulletin (EB 2014/61) was published on 22 October 2014 to inform Member States of the USOAP audit of the implementation of the ICAO safety management (SM) provisions.
- The EB indicated that the audit of the new SM-related PQs would commence in States with an EI of over 60% in January 2016.
- States with an EI of over 60% would have one year, until the end of 2015, to complete their self-assessments of the new SM-related PQs.
- The applicability and relevance of the PQs would be reviewed and, if necessary, amended annually.

Updating the PQs

- The USOAP CMA Protocol Questions (PQs) were updated to address the safety management (SM) provisions.
- New SM-related PQs have been added in each relevant audit area and are posted on the USOAP CMA Online Framework (OLF):
<http://www.icao.int/usoap/>.
- States are still asked to submit their up-to-date SSP Gap Analysis on iSTARS.

Recent Developments

- Not all guidance material and training material necessary to support the new SM-related PQs are available to date.
- A number of States with an EI of over 60% are not ready for an audit of the new SM-related PQs in 2016.
- For these reasons, the launch of audits of the new SM-related PQs has been postponed to **January 2018**.
- ICAO will perform a few assessments of the implementation of the new SM-related PQs in selected volunteer States throughout 2016 (in conjunction with ICVMs).
- ICAO will amend the SM-related PQs in 2016 to introduce improvements as needed.

- ICAO published EB 2015/56 to inform States of the following:
 - The launch of the USOAP CMA audits of the new SM-related PQs is postponed to **January 2018**.
 - States are required to continue to complete their self-assessment of the new SM-related PQs on the OLF.
 - ICAO will perform a few assessments of the implementation of the new SM-related PQs, in selected volunteer States, throughout 2016.

A Gradual Process

- Effective SSP implementation is a gradual process, requiring time to mature fully.
- Factors that affect the time required to establish an SSP include:
 - the complexity of the air transportation system; and
 - the maturity level of the aviation safety oversight capabilities of the State.
- Similarly, the monitoring by ICAO of States' SM implementation will be a gradual process.

USOAP CMA CBT

As per EB 2011/44, the first series of 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.
- Those who have already completed the CBT course will be re-registered to go over the revised course material without having to write another exam.
- The LEG/ORG CBT are now available.
- ICAO will waive CBT fees 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).
- More information available at:
<http://www.icao.int/safety/CMAForum/Pages/USOAPCMA-CBT.aspx>

REPORT ON USOAP CMA ACTIVITIES & RESULTS: Jan 2013 – Dec 2015

USOAP CMA Report: Jan 13 – Dec 15



- Covers the period from 1 January 2013 (launch of the CMA) until 31 December 2015.
- Based on data collected through USOAP CMA and stored in the CMA OLF and iSTARS SPACE.
- Contains statistical data on USOAP activities and results (EIs) globally and by “Region” (ICAO Regional Office accreditation areas).
- Also highlights issues identified in the 8 audit areas where EI is still low and where more efforts at global, regional and national levels are needed.
- Now available in the CMA Library Module of the USOAP CMA Online Framework at <http://www.icao.int/usoap>.



States' Main Obligations

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



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South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU