



ICAO

International Civil Aviation Organization

The Eighth Meeting of the APANPIRG ATM Sub-Group

Bangkok, Thailand, 23 – 27 November 2020

### Agenda Item 3: Performance Frameworks and Metrics

#### ANS USOAP UPDATE

(Presented by the Secretariat)

##### SUMMARY

As the primary tool used in ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) for assessing the effective implementation of the eight critical elements (CEs) of a State's safety oversight system, Protocol Questions (PQs) are revised periodically by ICAO to reflect amendments to the ICAO provisions and reference documents. This working paper focuses on the annual update of Air Navigation Services (ANS) USOAP information.

## 1. INTRODUCTION

1.1 States' safety oversight capability can be determined by accessing the implementation of PQs. The PQs are organized by eight audit areas and each PQ is associated with one of the eight CEs. The eight audit areas are Primary aviation legislation and specific operating regulations (LEG); Civil aviation organization (ORG); Personnel licensing and training (PEL); Aircraft operations (OPS); Airworthiness of aircraft (AIR); Aircraft accident and incident investigation (AIG); Air navigation services (ANS); and Aerodromes and ground aids (AGA).

1.2 As per requirements by ICAO USOAP CMA, if a State has implemented all the elements of the PQ and has provided all the relevant evidence, it is fully addressed a PQ, the PQ is assessed as "satisfactory". If a State provides insufficient or no evidence of compliance with the elements outlined in the PQ, the PQ is assessed as "not satisfactory". The State is required to develop and implement a corrective action plan (CAP) which addresses all elements of the "not satisfactory" PQ, including presentation of the necessary supporting documentation and evidence.

1.3 The 2017 edition of the USOAP CMA Protocol Questions (PQs) had been revised on the basis of the 2016 edition, and excluded aspects related specifically to the State Safety Programme (SSP). There were no new 2018 ANS PQs.

## 2. DISCUSSION

### Regional USOAP ANS Implementation Status

2.1 **Figure 1** provides an average level of Effective Implementation (EI) for the 36 States in APAC region that had been audited or received a USOAP activity. The average EI of APAC region is 68.52% (February 2020). There are 22 States the ANS EI is above 60%. Data source was from USOAP Continuous Monitoring Approach (CMA) Online Framework (OLF).

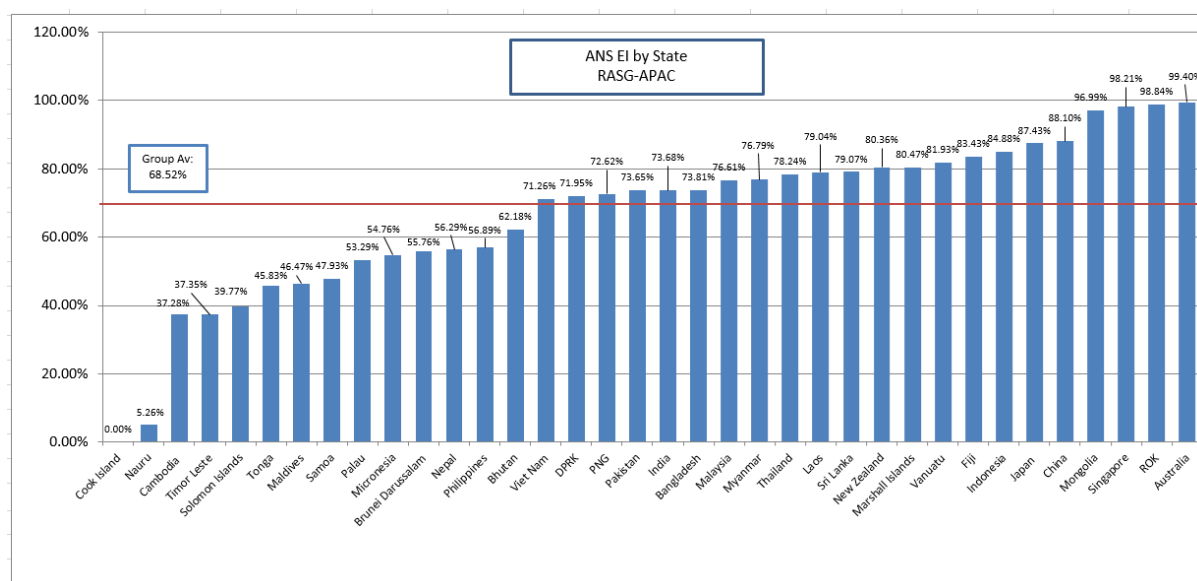


Figure 1: USOAP EI Comparisons by State (July 2020)

2.2 Figure 2 provides information on the Asia/Pacific Region’s EI by Area/Critical Element.

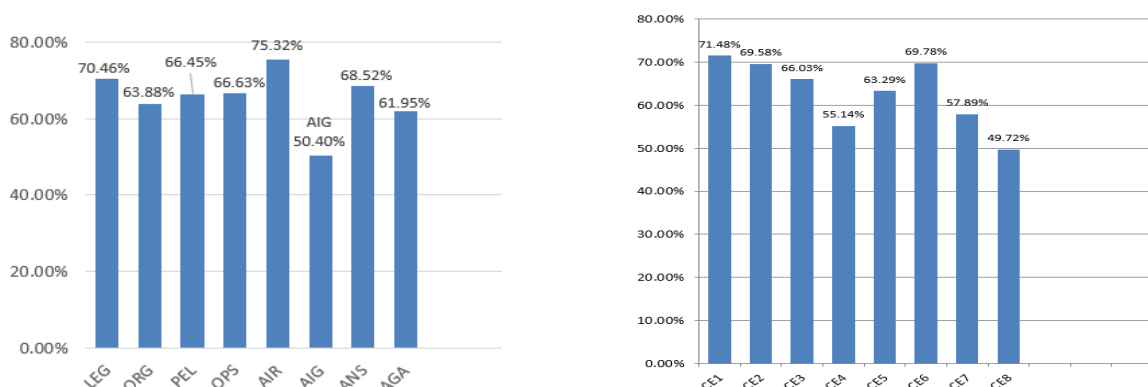


Figure 2: APAC EI by Area and Critical Element (July 2020)

2.3 The following data is provided for the comparison of effective implementation of the seven ANS fields under USOAP using the specific PQs related to these fields:

ANS Fields	EI of Each ANS Field (%)	
	2019	2020
ATS	71.47%	72.98%
AIS	67.11%	69.7%
PANS OPS	66.91%	69.57%
CHARTS	61%	65.54%
CNS	73.80%	73.71%
MET	68.17%	70.79%
SAR	58.99%	61.21%

Table 1: USOAP EI Comparisons by ANS Fields

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### CE4, CE7 and CE8 PQs in ANS Area

2.4 From **Figure 2**, the average EIs of CE4, CE7 and CE8 were lower than 60%. If the State understands the CE deliverable as follows, reads the PQ, guidance to auditors (**Attachment A**), and any previous finding in conjunction with the CE, then it should be clear what the auditor is seeking:

- CE-4: systems described in organizational manuals used to assure the competency of the CAA’s regulatory personnel such as the selection, training and assessment of auditors.
- CE-7 – systems described in CAA operational unit’s manuals to effectively conduct surveillance of approval, licence or certificate holders, which normally involves sampling using audit checklists (including unannounced spot checks); and
- CE-8 – systems described in organizational manuals that provide a means of reporting, identification, tracking, analysis, and resolution of safety concerns, including those stemming from safety incidents and accidents (focusing on systemic or ‘preventive’ actions, rather than individual ‘corrective’ actions).

2.5 States with lower EI of CE4, CE7 and CE8 need to raise their attention level and do more practical work on the selection and training of inspectors, effective surveillance, resolution of safety concerns.

### SSC in ANS Area

2.6 Significant Safety Concern (SSC) occurs when the 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 Convention are not met, resulting in an immediate safety risk to international civil aviation.

2.7 SSC can be identified in the area of air navigation services. SSC Sensitive PQs in ANS area can be distributed in the following PQs.

- SSC Sensitive PQs (High Classification) are 7.019, 7.081, 7.137, 7.139, 7.247, 7.393;
- SSC Sensitive PQs (Medium Classification) are 7.031, 7.061, 7.063, 7.119, 7.151, 7.159, 7.177, 7.187, 7.209, 7.231, 7.269, 7.287, 7.325, 7.343, 7.373, 7.391, 7.417, 7.435, 7.465;
- SSC Sensitive PQs (Low Classification) are 7.069, 7.101, 7.121, 7.135, 7.153, 7.155, 7.189, 7.215, 7.221, 7.229, 7.243, 7.249, 7.281, 7.337, 7.371, 7.385, 7.403, 7.429.

2.8 An ICAO Coordinated Validation Mission (ICVM) was conducted in Bhutan by an ICAO team in 2018, which identified an SSC concerning air traffic services and aeronautical information services (**Figure 3**). Bhutan had to prepare for the corrective action plans (CAPs) for the SSC and upload the CAPs to USOAP CMA Online Framework. States should pay special attention to SSC, due to the risks that it poses to civil aviation.

SIGNIFICANT SAFETY CONCERN (SSC) RELATED TO AIR NAVIGATION SERVICES (SSC No. ANS 01/September 2018)		
<b>State:</b>	<b>Bhutan</b>	<b>Protocol Questions:</b> ANS 01/September 2018
<b>Audit period:</b>	24 to 31 October 2006	7.063; 7.081; 7.107; 7.119; 7.121; 7.151; 7.158;
<b>ICVM period:</b>	7 to 16 August 2018	7.159; 7.177; 7.187; & 7.287.
<b>Critical Element:</b>		
CE-1 <input type="checkbox"/> CE-2 <input type="checkbox"/> CE-3 <input checked="" type="checkbox"/> CE-4 <input type="checkbox"/> CE-5 <input type="checkbox"/> CE-6 <input checked="" type="checkbox"/> CE-7 <input checked="" type="checkbox"/> CE-8 <input checked="" type="checkbox"/>		
<b>FINDINGS:</b>		
<p>Officially, the only Air Traffic Services (ATS) provider established in Bhutan is the Department of Air Transport (DoAT), established within the Ministry of Information and Communications, which is a separate entity from the Bhutan Civil Aviation Authority (BCAA). However, the industry visit revealed that, in practice, ATS at Paro International Airport (VQPR) is provided by a unit of the Indian Air Force (IAF). This provision is not based on any documented agreement. In addition, there is no clarity regarding the type of ATS that is provided at VQPR and in the rest of the airspace of Bhutan. In particular, the Aeronautical Information Publication (AIP) of Bhutan does not contain comprehensive, clear and consistent information on the airspace designation, classification and the type of ATS provided.</p> <p>The industry visit revealed many non-compliances of the actual ATS provider with the ICAO provisions, in particular with respect to training and qualification of ATS personnel and with the procedures used.</p> <p>Moreover, the BCAA has not performed any initial and continuous verifications of compliance of the ATS provider with the State's requirements and ICAO provisions. The industry visit also revealed that ATS related incidents had occurred and had not been appropriately reported and investigated.</p>		

**Figure 3:** Example of SSC in ANS Area

**3. ACTION BY THE MEETING**

- 3.1 The meeting is invited to:
- a) note the information contained in this paper; and
  - b) discuss any relevant matters as appropriate.

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## USOAP Programme – Basic Guidance to States

### Purpose

1.1 This basic guidance is intended to supplement the formal information in ICAO Doc 9734 *Part A - State Safety Oversight System* and 9735 *Safety Oversight Audit Manual*. It is primarily designed for the State's National Continuous Monitoring Coordinator (NCCM) and others interacting with the International Civil Aviation Organization's (ICAO's) Universal Safety Oversight Programme (USOAP), especially in preparation for an on-site activity.

### Background

2.1 The USOAP initiative has been operational since March 1996. It is intended to provide a quantifiable measure of a State's compliance levels with ICAO Standards and Recommended Practices (SRPs), and associated procedures and guidance material, for the international community and the travelling public.

2.2 One metric is the statement of Effective Implementation (EI) for each audit area or Critical Element (CE). However, the EI should be used with caution, as it is only a 'snapshot' at one particular time. In addition, USOAP only assesses a portion of the civil aviation system – mainly focused on the aviation regulator. The EI is determined through evaluation of a large number of Protocol Questions (PQs), which normally relate to SRPs.

2.3 USOAP results are published on the ICAO USOAP website (<https://soa.icao.int/>), so it is a useful tool in terms of motivating the highest levels of State performance, particularly if the media and high level decision-makers are aware of the results. The website is also the repository for the PQs, and all other information associated with the USOAP that the State needs.

2.4 States involved in the USOAP sign a Memorandum of Understanding (MOU) with ICAO. The MOU outlines the responsibilities and obligations of States and ICAO during this process.

### USOAP Activity

3.1 All States are expected to undergo an audit at least once every six years, but sometimes this frequency is not possible due to a lack of resources.

3.2 The civil aviation system is evaluated by eight different, but connected audit areas under the USOAP system:

- 1) Primary Aviation Legislation and civil aviation regulations (LEG) - this area involves the State's laws and regulatory requirements, together known as 'regulations';
- 2) Civil Aviation Organization (ORG) – this refers to the Civil Aviation Authority (CAA), or other such bodies designated as the aviation regulator;
- 3) Personnel Licensing and training (PEL) – this area is concerned with the licences of air traffic service staff (such as air traffic controllers), licenced aircraft maintenance engineers (LAMEs) and pilots;
- 4) aircraft operations (OPS) – the assessment of aircraft operators such as airlines;
- 5) Airworthiness of aircraft (AIR) – the assessment of licenced aircraft maintenance organisations (not the engineers themselves);

- 6) Aircraft Accident and Incident Investigation (AIG) – this is usually concerned with the independent organisation dedicated to safety investigation (but not just accidents as the aviation system tries to become more pro-active by analysing incidents and other data);
- 7) Air Navigation Services (ANS) – broken into seven different sub-categories (Air Traffic Services (ATS), Aeronautical Information Services (AIS), Aeronautical Meteorology (MET), Cartography (CHART), Communications, Navigation Surveillance (CNS), Flight Procedure Design for Flight Operations (PANS-OPS), and Search and Rescue (SAR); and
- 8) Aerodromes and Ground Aids (AGA) – concerned with the assessment of aerodrome operations and aerodrome navigation or safety aids associated with aircraft on or near the ground, such as runway markings.

3.3 There are three main types of USOAP on-site activities:

- 1) ICAO Coordinated Validation Mission (ICVM) – the primary purpose of an ICVM mission is to assess a State’s progress addressing its ‘not-satisfactory’ PQs, so ICVMs only determine the status of a portion of PQs and the EI can only go up (this may cause lead to a false impression of overall EI, as the ‘satisfactory’ PQs are not evaluated);
- 2) Integrated Validation Activity (IVA) – which is normally a brief extension of an ICAO mission for another purpose, to collect evidence on an opportunity basis; and
- 3) Audit – a 100% assessment of all PQs, regardless of their previous status.

3.4 The ICVM or audit process consists of three phases. In the preparation phase, the ICAO Team Leader coordinates with the NCMC to facilitate the on-site phase. During this period, States should employ extra resources to enhance their self-assessment and gather evidence related to Corrective Action Plans (CAPs), so auditors can use the limited time available to determine the PQ’s provisional status.

3.5 After the on-site phase, a validation process is conducted by a person in ICAO Headquarters (Safety and Air Navigation Oversight Audit Section (OAS), independent of the ICVM team, who re-evaluates each PQ’s status. Finally, results are reported through the relevant ICAO Regional Office.

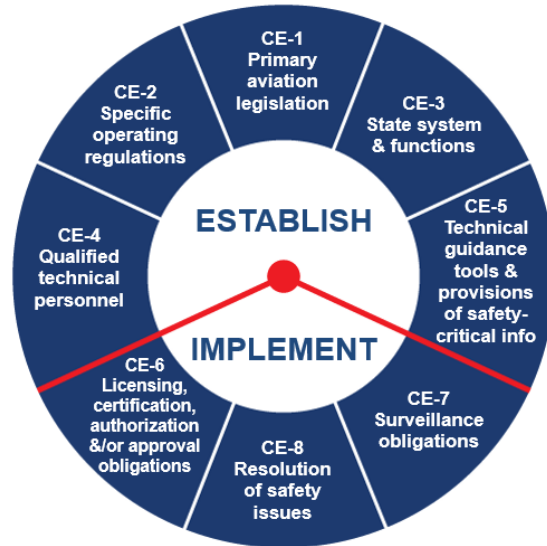
### **Critical Elements**

4.1 If the State understands the CE deliverable as follows, and reads the PQ, guidance to auditors and any previous finding in conjunction with the CE, then it should be clear what the auditor is seeking:

- CE-1 – this means primary legislation normally enacted by parliament and applicable to all persons (including visitors) within the territory of the State (LEG);
- CE-2 – this is the lower-level secondary legislation normally approved by a Minister or Director General of Civil Aviation (when the law does not involve a conflict of interest with the Director General’s powers), and which is usually only applicable to persons involved in or interacting with the civil aviation system (LEG);
- CE-3 – involves the structural descriptions in high level organizational documents of the CAA and civil aviation, which practically means about how the CAA and the civil system is regulated and organised, such as organograms and external agreements (ORG);
- CE-4 – systems described in organizational manuals used to assure the competency of the CAA’s regulatory personnel such as the selection, training and assessment of auditors;

*Note 1: the term ‘inspectors’ is widely used in USOAP PQs; however, with the exception of CE-6 activities, regulatory actions are more often sampling and high level oversight, rather than the inspection of each item.*

*Note 2: the status of many LEG and ORG PQs (CE-1 to CE-4) are not normally finalized until the third or fourth day of the on-site activity’s evaluation of the evidence collected in other areas, as they are often linked to CE-6 and CE-7 PQs.*



**Figure 1: USOAP Critical Elements**

- CE-5 – this is supporting tools or guidance material either in the form of specialist equipment, policies and procedures to enable the CAA’s technical personnel to conduct regulatory oversight, or safety advice to external stakeholders such as pilots.

*Note 3: CE-5 procedures must provide sufficient detail on WHO does WHAT, WHEN, HOW and in coordination with WHOM, otherwise the PQ will be ‘not satisfactory’.*

- CE-6 – systems described in CAA operational unit’s manuals to check the compliance of entities seeking approval, and issuance of licences or certification (‘entry control’), which normally involves checklists that allow a 100% assessment of compliance with regulations (or exemptions issued when regulatory compliance is not possible);

*Note 4: most CE-6 approvals or certification PQs can only be assessed as ‘satisfactory’ if the State has completed the process for all required approval/licence/certificate holders.*

- CE-7 – systems described in CAA operational unit’s manuals to effectively conduct surveillance of approval, licence or certificate holders, which normally involves sampling using audit checklists (including unannounced spot checks); and
- CE-8 – systems described in organizational manuals that provide a means of reporting, identification, tracking, analysis, and resolution of safety concerns, including those stemming from safety incidents and accidents (focusing on systemic or ‘preventive’ actions, rather than individual ‘corrective’ actions).

*Note 5: CE-6, 7 and 8 PQs can normally only be assessed as ‘satisfactory’ if effective implementation is demonstrated, especially on industry visits.*

### **On-site Preparation**

5.1 States are required to regularly update the status of PQs, using the Online Framework (OLF) at <https://usoap@icao.int>. The purpose of the self-assessment is not merely to assist ICAO's insight into the State's understanding of the PQ and CAP, and what actions the State might have taken. This is also the area where the evidence can be uploaded mission preparation. It is very beneficial to both the State and ICAO if this material can be analyzed by the auditors before the on-site phase.

5.2 CAP information and PQ self-assessment is normally 'frozen' on the OLF by ICAO approximately one month before the on-site activity, to enable the ICAO ICVM experts to analyze the data. By this time at the latest, States should have provided the following to the ICAO Team Leader:

- 1) confirmation of the details of the designated State's counterparts and their titles and emails in the respective areas being audited;
- 2) access to up-to-date copies of the State's legislation, regulations, procedure manuals and organization diagrams related to the audited fields;
- 3) a complete list of service providers in the areas audited that are engaged in international operations; and
- 4) a telephone and mobile number contact number for the NCMC.

5.3 State focal points for the respective areas are encouraged to familiarize themselves with the audit, ICVM or IVA protocols, and associated ICAO documents that can be found on the OLF under the CMA library icon. Regular pre-ICVM meetings between the NCMC and the CAA's focal points of contacts are highly recommended, to ensure the progress in preparation for an on-site mission is monitored.

5.4 Unless agreed by the Team Leader, social events during the on-site portion should not be planned, mainly due to the workload on auditors. This is particularly the case during after work hours, when auditors are often busy reviewing material and preparing for the next day. Social events should also be avoided because they may lead to occasions when gifts or other gratuities are offered to auditors, which is not allowed under ICAO rules.

### **Evidence**

6.1 The State's counterparts in each audited area should focus their efforts on preparing answers to the PQ findings and organize relevant evidence for the team member's on-site review. There is little point uploading multiple documents if none of them are related to answering the CE, PQ, guidance to auditors and any finding. At the same time, it makes it very difficult for ICAO auditors to assess compliance if there is voluminous material to review. Do not upload any 'draft' documents.

6.2 In this regard, it is often easier for auditors to review an excerpt from a document, which is acceptable if the source document is identifiable, along with the page number, version and date. If an entire manual is uploaded, it is necessary for a State to clearly indicate where to find the evidence in the document (for example, which section or paragraph to review).

6.3 In addition to uploading evidence onto the OLF, it should also be saved in a separate electronic folder titled with the corresponding PQ number.

6.4 **Figure 2** is an example of some ANS folders ready for evidence, noting that for an ICVM, folders only need to be prepared for those PQs that are ‘not satisfactory’ status.

- 7.000 GEN
- 7.001
- 7.003

**Figure 2:** Example of Electronic Evidence Folders

6.5 If the same document serves as evidence for several PQs, it is helpful to save the document in a general folder titled X.000 GEN for that area. For example, for LEG, the folder should be titled 1.000 GEN, and for ORG, it should be titled 2.000 GEN. However, this is not an important task for the State to do, as the ICAO auditor can do this if necessary on-site.

6.6 The most important task for a State is to conduct a self-assessment of the evidence – as if the State was doing an audit using the ICAO PQ checklists and the guidance therein, to assess if the evidence is available and relevant. It is worth recalling at this stage that not only is the evidence supposed to relate to the CE, PQ, guidance to auditors and any finding, but procedures should be in the ‘who, what, when, how and in coordination with whom’ format previously mentioned.

6.7 Each piece of evidence should be titled with its relevant PQ number first, then its contents or usage. An acceptable example would be ‘7.383 MET Inspector’s Procedures Manual’, not ‘IPM 004’. When sending evidence to auditors by email, make sure the email ‘subject’ starts with the PQ number.

6.8 ICAO does not recommend the provision of paper documents as evidence, so all evidence should be in pdf or in another electronic form that is not able to be changed. If a paper source document is not in electronic form, then it should be scanned, but as a searchable pdf, not as an image. In this way, the auditor can search for particular key words or phrases.

6.9 Evidence should be provided in the language agreed for the on-site activity. If this is English, then it is probably easier just to translate relevant portions of documents (not whole documents) before the ICVM team arrives if they are not in English. In addition, please ensure that all the counterparts for the ICAO team are able to communicate in the language agreed; otherwise, translators will need to be provided by the State so the auditor can understand the evidence.

### **Industry Visit**

7.1 According to ICAO Doc 9735, industry visits will be carried out by the ICAO auditors as part of an on-site activity. These visits are always accompanied by a representative of the CAA.

7.2 The purpose of the industry visit is not to assess the aviation service providers, but rather to verify the implementation of the State’s oversight of the industry’s responsibilities and tasks. It is recommended that CAAs clearly advise those service providers subject to an industry visit about the purpose, so that individuals do not become concerned that they might be subject to regulatory actions. Any deficiencies observed on an industry visit will be noted by the auditors and may be mentioned to the CAA personnel, but will be considered in the context of a possible deficiency by the State regulator, not the service provider or its personnel.

7.3 The industry visit generally starts with a meeting between representatives of the organization visited, ICAO auditors and CAA inspectors, with a short presentation given by the organization about its activities, followed by questions and answers. Thereafter, the audit team tours the facilities, during which additional questions may be asked. The questions will normally be related to CE-6, CE-7 and CE-8 PQs.

### Significant Safety Concerns

8.1 Significant Safety Concerns (SSCs) can be generated as a result of Mandatory Information Requests (MIRs), ICVMs or audits. The definition of an SSC requires two elements to be satisfied:

- 1) The State has allowed a document holder to exercise privileges, even though the service provider has not met the standards set out in the ICAO SARPs; and
- 2) There is an immediate risk to international civil aviation.

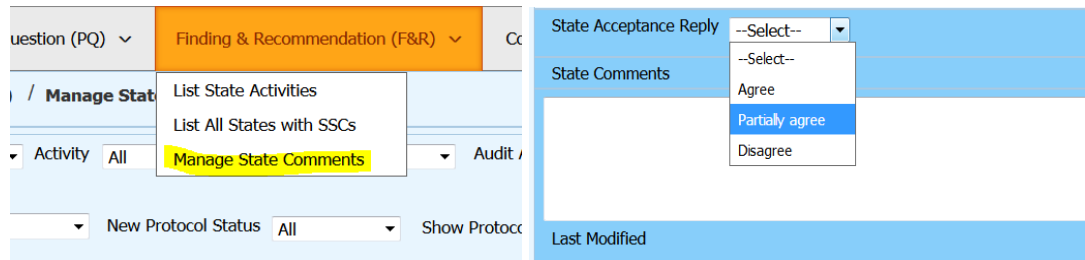
8.2 When a possible SSC is first identified, it is always ‘preliminary’ in status, using the following steps:

- the ICAO Team Leader immediately advises the Chief, OAS (ICAO Headquarters);
- the ICAO Team Leader brings the issue to the attention of the State’s NCMC;
- the State takes immediate corrective actions or mitigating measures if possible; and
- the Team Leader submits all information on preliminary SSCs to the Chief, OAS.

8.3 Preliminary SSCs are described to State during closing briefing. Preliminary SSCs are then validated or not by the SSC Validation Committee, ICAO Headquarters.

### Post On-site Actions

9.1 Upon receipt of draft report, the State may provide comments on the report itself and/or on any progress related to findings. Evidence not provided during the on-site activity, or new evidence created after the on-site activity will not be acceptable at the comments stage. The State is permitted to enter comments on the ‘Manage State Comments’ page (**Figure 3**).



**Figure 3:** OLF Facility to Submit State Comments

9.2 After receiving the draft report, the State will be invited to prepare CAP updates to reflect the expected steps to be taken to resolve any finding. However, the upload of CAPs to the OLF can only occur after receipt of the final report, as the OLF export function will be available only after final report is issued.

9.3 For detailed information on developing CAPs, States should refer to *CAP Guidance for States (July 2016)* on the OLF CMA Library.

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