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SAFE SKIES.
SUSTAINABLE
FUTURE.

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Items of the discussion

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02 SSC Mechanism: Identification, Notification & Resolution

03 Status of SSCs

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What is a significant safety concern?

"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

How are SSCs identified, notified and resolved

- In 2006, the Council approved a mechanism for dealing with significant safety concerns (SSCs) identified during the conduct of safety oversight audits.
- The SSC mechanism is a USOAP CMA process that is used to notify a State of identified deficiencies that may pose an immediate safety risk to international civil aviation.
- An SSC may be identified by a USOAP CMA activity team during the conduct of a USOAP CMA on-site activity or by ICAO at any stage throughout the continuous monitoring process.
- There are four main steps to the SSC process:

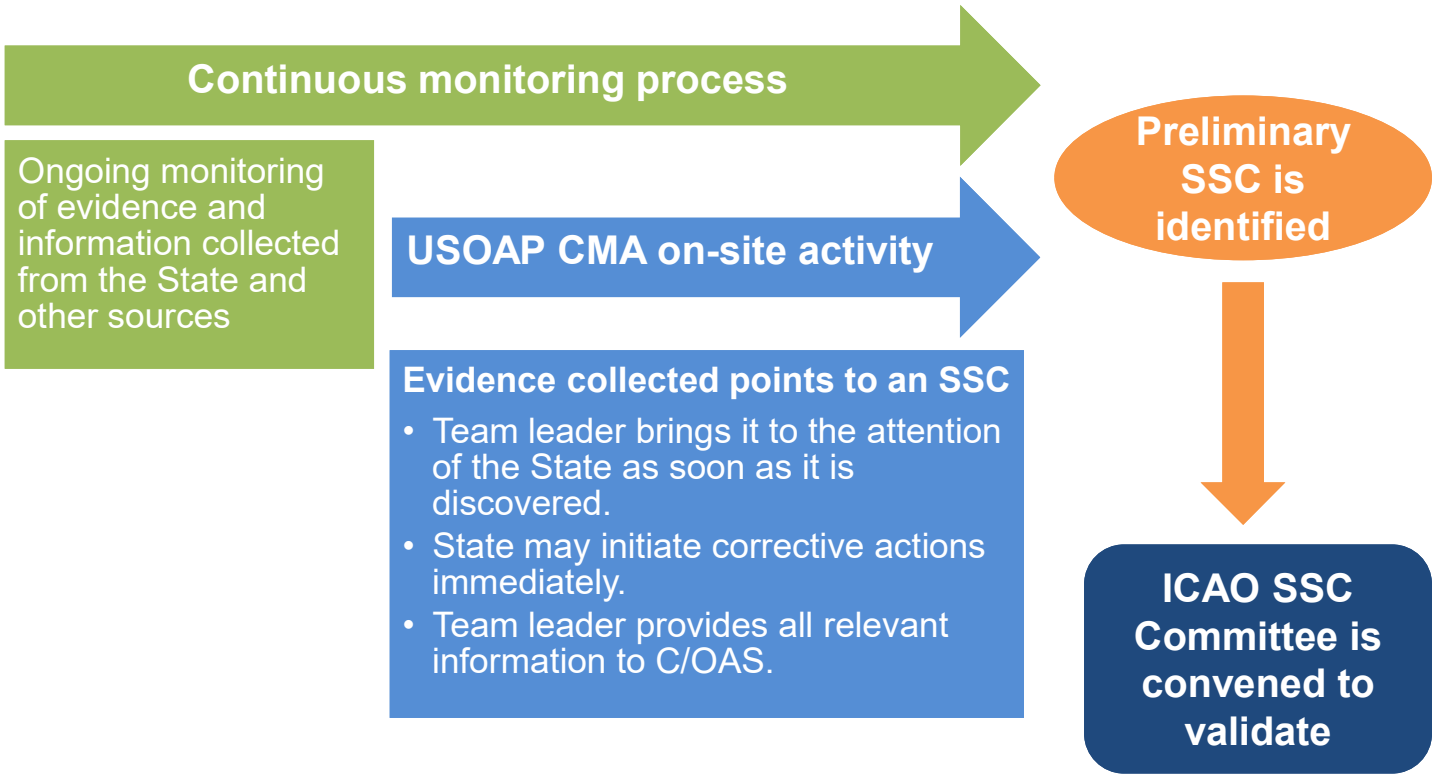
    1. Identification of a preliminary SSC;

    2. Confirmation or dismissal of the SSC by the SSC Validation Committee (within 15 days of identification);

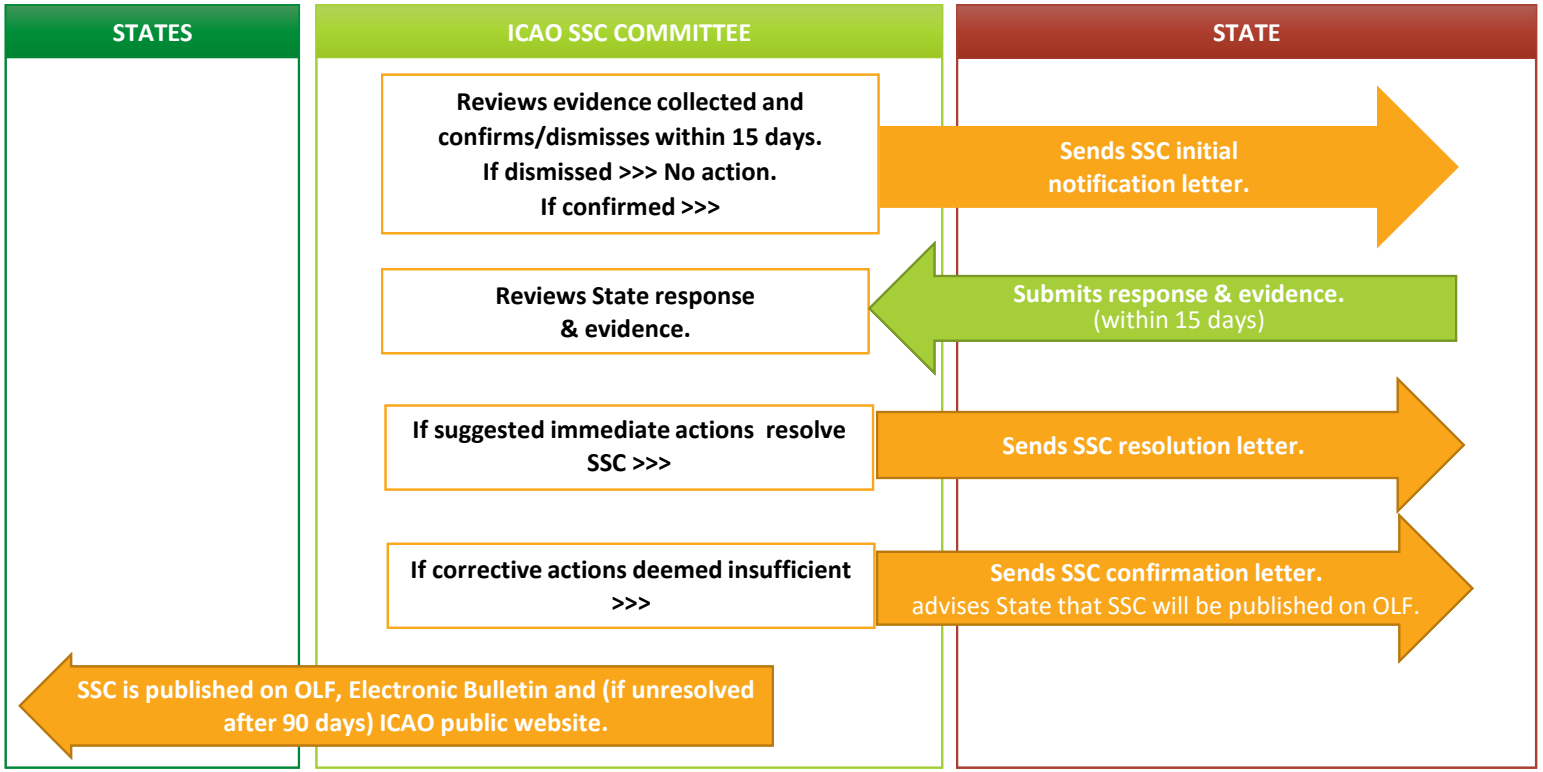
    3. Determination of whether actions taken by the State resolve the SSC; and

    4. On-going assessment of an unresolved SSC.

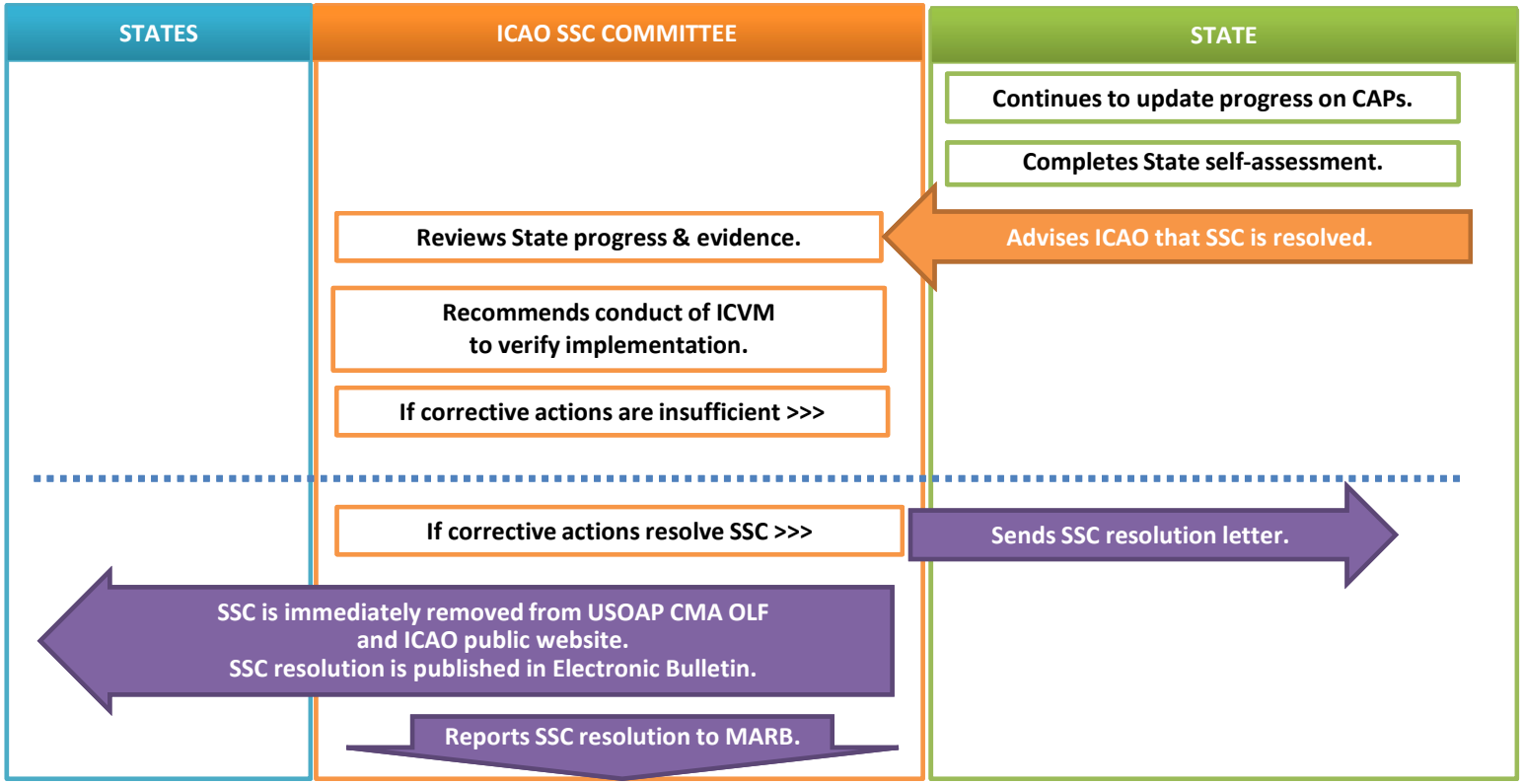
SSC Mechanism: Identification



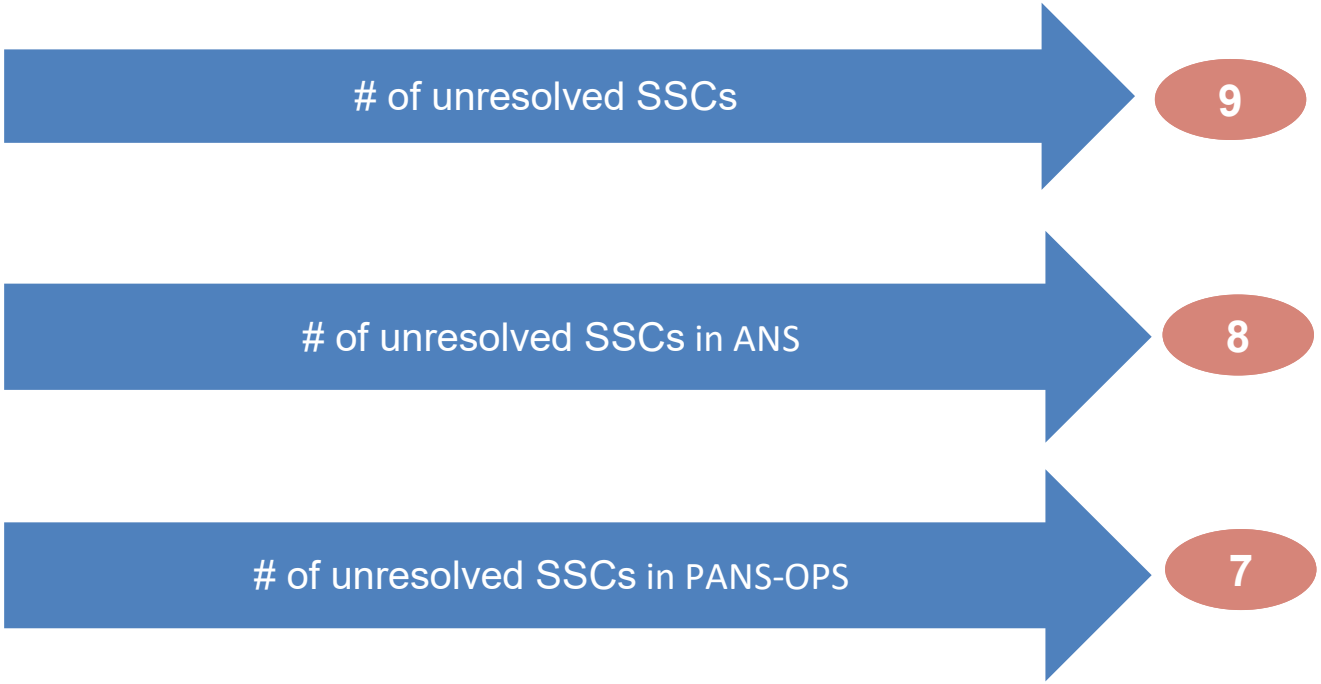
SSC Mechanism: Notification



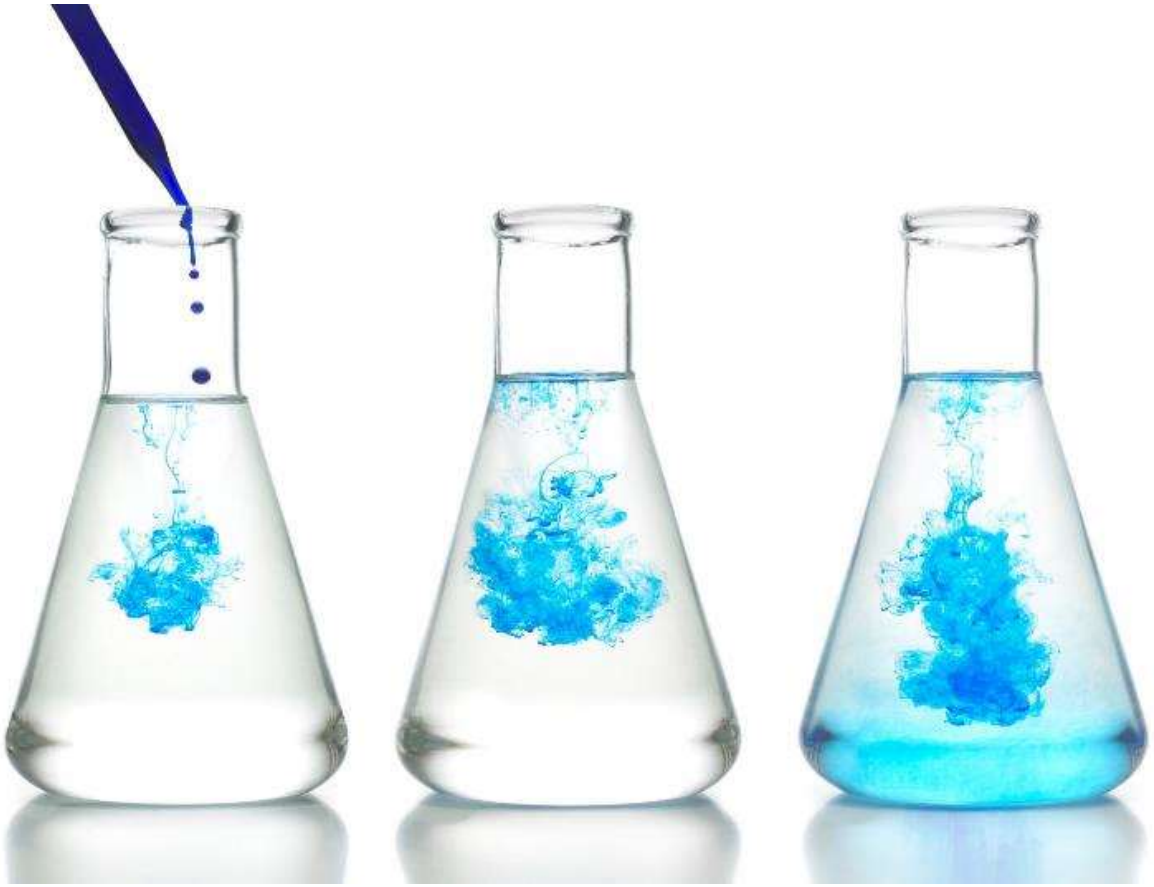
SSC Mechanism: Resolution



Status of SSCs



SSC Examples



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Case Study 1a: FINDINGS / DESCRIPTION (7.229, 7.234, 7.247, 7.253 & 7.255)

- The regulations applicable in State X require the development of instrument flight procedures that meet the international criteria described in the ICAO PANS-OPS. The safety of flight operations during the approach and departure phases depends on the minimum obstacle clearance margin (MOC); the regular verification of the MOC is therefore crucial to ensure the safety of flight operations. It was noted that there is no formal process in place within the Civil Aviation Authority to ensure that flight procedures comply with the criteria promulgated by the State and the measures used to control the quality of the process (including obstacle checks).

- Furthermore, in its regulations provisions for instrument flight procedure design service providers (IFPDS) to retain all design documents in order to allow for the correction of anomalies in the data or errors found during the production, maintenance, or operational use of the procedures. However, no detailed mechanism has been put in place to ensure that all design documents are retained.

ICAO RECOMMENDATIONS

Immediate corrective actions:
The CAA should suspend all approach procedures associated with international civil aviation until the authority ensures, through an approval process, that they are designed in accordance with the State-approved design criteria (including quality control requirements and obstacle clearance).

ICAO RECOMMENDATIONS

Short-term corrective actions:

The CAA Should:

1.Ensure that IFPDS providers retain all procedure design documents to allow for the correction of anomalies in the data or errors found during the production, maintenance, or operational use of the procedures.

2.Ensure that appropriate minimum qualification requirements are met by flight procedure designers.

3.Ensure that IFPs are periodically reviewed (including validation) to ensure they continuously meet the criteria and consistently meet user needs.

Case Study 1b: FINDINGS / DESCRIPTION (7.139 & 7.393)

- The State has promulgated in its regulations (RACD 17-1) requirements for flight inspections to ensure periodic flight inspections of radio navigation aids. Additionally, the State has prescribed implementation standards aimed at setting provisions for the execution of installation, replacement, and maintenance operations of communication, navigation, and surveillance (CNS) means. The State has provided the concerned stakeholders with guidance documents indicating that flight checks of CNS installations must be carried out according to the defined periodicity for each type of installation as follows:
    - VHF omnidirectional radio range (VOR): at least once a year
    - Distance measuring equipment (DME): at least once a year
    - Instrument landing system (ILS): at least once every six months
- However, the navigation aids (NAVAIDS) at two Airports have not been calibrated since 2019. Additionally, the new Doppler VOR (DVOR) installation at one International Airport was installed and commissioned without conducting flight checks. Furthermore, information on the operational status of navigation aids is not promptly transmitted to the appropriate air traffic service (ATS) organizations.

ICAO RECOMMENDATIONS

Immediate corrective actions:

The CAA should suspend the use of all NAVAIDS associated with international air navigation services until flight inspections are carried out and the Civil Aviation Authority ensures that they meet its operational requirements

ICAO RECOMMENDATIONS

Short-term corrective actions:

The CAA Should:

1.Establish and implement a regular flight inspection program to determine if the performance of the NAVAIDS installation continues to meet standards and satisfy its operational requirements.

2.Ensure that information on the operational status of navigation aids is promptly transmitted to the appropriate ATS organizations.

Case Study 2a: FINDINGS / DESCRIPTION (7.234, 7.247, 7.249 & 7.253)

- The State has promulgated regulations as the basis for instrument flight procedures (IFP) design. Regulations states that the Flight Procedures Design shall be designed in accordance with ICAO PANS-OPS (Doc 8168).
- The State has published all IFPs without establishing and implementing any approval process to ensure that flight procedures are in accordance with the criteria promulgated by the State. RNAV GNSS STARs and the Instrument Approach Procedures (IAPs) RWY 22 and 04 at the Airport were designed using non-ICAO criteria by a foreign air operator in 2013 and subsequently , the CAA was strongly advised by the air operator to conduct a survey of obstacles around the airport to confirm the accuracy of the database used in the design of the IFPs, mainly due to additional obstacles observed during the flight validation.
- Furthermore, State has published IFPs without ensuring that the IFPs comply with measures that control the quality of the process (including obstacles checks), and no obstacles survey has been conducted as advised. In addition, obstacle clearance altitude/height (OCA/H) is not published in all IAP charts.
- The State still has available IFPs associated to navigation aids (NAVAIDs) that are out of service (DVOR).

ICAO RECOMMENDATIONS

Immediate corrective actions:

The State should suspend all the instrument approach procedures until IFPs comply with measures that control the quality of the process (including obstacles checks and the availability of the NAVAIDs.

Short-term corrective actions:

The State should ensure that:

1) an obstacle survey of the Airport is conducted by a competent surveyor to confirm the accuracy of the database used for the IFP design;

2) all published IFPs are reviewed by a qualified PANS-OPS designer to ensure that adequate terrain and obstacle clearance have been provided; and

3) the obstacle clearance altitude/height (OCA/H) is published in the corresponding IAP charts.

ICAO RECOMMENDATIONS

Long-term corrective actions:

The State should:

1) establish and implement a safety oversight system for the Instrument Flight Procedure Design (IFPD) service, including the establishment and implementation of an approval process for IFPs; and

2) establish and implement an effective mechanism to ensure that published procedures are subject to a periodic review, including validation,

a) to ensure that they continue to comply with changing criteria, and

b) to confirm continued adequate obstacle clearance, which meet user requirements.

Case Study 2b:FINDINGS / DESCRIPTION (7.139 & 7.393)

- The State has promulgated Civil Aviation Regulations (LCAR) Part 23, which states that radio navigation aids (NAVAIDs) available for use by aircraft engaged in international air navigation shall be subject to periodic ground and flight tests.
- Guidance material on flight and ground testing of radio NAVAIDs were developed indicating that maximum periodicity of the flight test is as follows :
  - VOR (12 months),
  - ILS (6 months), and
  - DME (12 months).
- However, flight inspections have not been performed for the available radio NAVAIDs since February 2020. In addition, the information on the operational status of NAVAIDs have not been forwarded to the appropriate air traffic service (ATS) units.

ICAO RECOMMENDATIONS

Immediate corrective actions:

The State should conduct the NAVAID flight inspections and carry out the necessary maintenance in accordance with the results of the inspections.

Short-term corrective actions:

1) establish and implement a regular flight inspections programme to determine whether the performance of the NAVAID facility continues to meet standards and satisfy its operational requirements; and

2) ensure that information on the operational status of NAVAIDs is promptly forwarded to the appropriate ATS units and the communications, navigation and surveillance (CNS) service provider

Case Study 3:FINDINGS / DESCRIPTION (7.234; 7.247; 7.249 & 7.253)

- The CAA has promulgated the Instrument Flight Procedures) Regulations require that:

  a) instrument flight procedure (IFP) service providers ensure that visual and instrument flight procedures are developed in accordance with the design criteria detailed in Doc 8168 — Aircraft Operations Volume II;

  b) flight validations are performed to ensure, among others, clearance of obstacles; and

  c) IFPs are subjected to flight “inspections”, including obstacle checks, prior to their publication.

- The Regulations require IFPs to be reviewed and flight validated, if necessary, in a five-year maximum interval.
- The State has engaged with an IFP service provider to review the IFPs in accordance with the provisions of ICAO Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168) and Doc 9906 — Quality Assurance Manual for Flight Procedure Design. However, no evidence of flight validation for obstacles check was provided.
- Furthermore, there is no evidence of periodic reviews performed (including flight validation) to confirm that the published IFPs ensure adequate obstacle clearance. In addition, there is no evidence of the initial approval process for the published IFPs, nor evidence of identifying and describing the controlling obstacles. Consequently, there is no assurance that the obstacle clearance altitude or obstacle clearance height (OCA/OCH) have been properly established.

ICAO RECOMMENDATIONS

Immediate corrective actions:
The State should suspend all instrument approach procedures (IAPs) associated with international civil aviation operations that are not supported by the corresponding documented flight validations conducted for obstacles check within the last 5 years.

Short-term corrective actions:
The CAA should:

a. ensure, through an approval process, that IFPs were designed in accordance with State-approved design criteria (including quality control requirements and obstacle clearance).

b. ensure that instrument flight procedures design service (IFPDS) suppliers retain all procedure design documentation.

ICAO RECOMMENDATIONS

Long-term corrective actions:

Ensure that IFPs are periodically reviewed (including flight validations) to guarantee that they continue to meet the criteria and continue to meet users' needs.

Case Study 4a:FINDINGS / DESCRIPTION (7.393)

- The State has promulgated regulation 210 “Aeronautical Telecommunications”, in which the test periods for radio aids are prescribed in accordance with ICAO Doc 8071 – Manual on testing of radio navigation aids, Volume I – Testing of ground-based radio navigation systems.
- Despite the multiple surveillance communications from the operational safety entity warning about the recurring expiration of time frames for inspection flights, the State has allowed all radio aids associated with international operations to remain in operation without the respective in-flight verifications with the periodicity prescribed in said regulation 210.

ICAO RECOMMENDATIONS

Immediate corrective actions:

The State should temporarily remove from service all navigation aids associated with international operations whose flight inspection periodicity has expired in accordance with the deadlines foreseen in Regulation 210, until the corresponding flight inspections are carried out and the respective operational safety surveillance unit validates their results.

Short-term corrective actions:

NA

Case Study 4b:FINDINGS / DESCRIPTION (7.234, 7.247 & 7.253)

- The State has promulgated regulation 211 “Air Traffic Services,” which prescribes the use of design criteria for the design of flight procedures in accordance with ICAO Document 8168 – Procedures for Air Navigation Services – Aircraft Operations, Volume II – Construction of Visual and Instrument Flight Procedures.
- However, there is no approval process to ensure that instrument flight procedures (IFP) conform to the criteria promulgated by the State and that the IFPs comply with the process quality control measures.
- Additionally, there is no evidence of flight validation of the procedures as part of the initial development and also as part of periodic examinations to confirm, among other things, that obstacle clearance is adequate.

ICAO RECOMMENDATIONS

Immediate corrective actions:

The State suspend all IFPs whose flight validation has not been carried out in the last 5 years until it ensures that the IFPs are designed in accordance with State criteria and that process quality control measures (including flight validation regarding obstacle clearance verification) are met.

Short-term corrective actions:

Establish and implement an approval process to ensure that IFPs are designed in accordance with State criteria and that process quality control measures (including flight validation regarding obstacle clearance verification) are met.

CORRECTIVE ACTION PLAN

- When ICAO issues a finding, i.e. when the status of a PQ changes to not satisfactory as a result of a USOAP CMA activity, in response the State must develop a corrective action plan (CAP), as required by the CMA MOU
- The State shall develop an acceptable CAP and submit it to the OAS through the USOAP CMA online framework
- The State must provide and implement CAPs that meet certain criteria. Proposed CAPs must fully address the associated PQ and all identified deficiencies.
- Once OAS accepts the State's CAPs, the State starts to implement the corrective actions.
- The OAS regularly monitors the State's progress in implementing its CAPs through the online framework until each CAP is fully implemented.

Six Criteria for a Good CAP ("RCDSRC")

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

Group Activities

Group Activities 1

- By splitting into groups, you can leverage the diverse expertise and perspectives within your team.
- Each group is assigned to develop a corrective action plan for each SSC
- Each group is tasked with analysing the root causes of the identified issues, formulating actionable steps to address them, assigning responsibilities, and establishing clear timelines for implementation.
- Ensure that your CAP is well-structured, feasible and realistic.
- Each group will have 60 minutes to prepare their corrective action plan. Following this, we will reconvene to allow each group to present their CAPs to the wider workshop audience.

Group Activities 1

- Group 1: Case study 1a
- Group 2: Case study 2a
- Group 3: Case study 3

Sample CAPs

1. Liberia
2. Democratic Republic of Congo
3. Ecuador
4. Zimbabwe

Group Activities 2

- Within your groups:
- Review the USOAP PQs assigned
- By providing appropriate evidences
- Group 1: 7.234 & 7.255
- Group 2: 7.247 & 7.249
- Group 3: 7.253 & 7.393

Group 1

7.234

PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	PPQ	CE
7.234	Does the State ensure that instrument flight procedures (IFPs) are reviewed periodically (including validation) to ensure that they continue to comply with changing criteria and meet user requirements?	1) Review mechanism established to ensure effective implementation. 2) Sample documentation regarding periodic reviews done and verify that they are still valid in terms of minimum obstacle clearances. 3) Confirm that maximum interval for review is five years.	PANS Doc 8168 (OPS) Vol. II, Part 1, Section 2, C4 STD A11 App. 7, 6	Yes	CE-7

Group 1

7.255

PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	PPQ	CE
7.255	Does the State ensure that IFPDS providers retain all procedure design documentation, so as to allow any data anomalies or errors found during the production, maintenance or operational use of the procedure to be corrected?	1) Review mechanism established to ensure effective implementation. 2) Review procedures, working files, documentation and data.	PANS Doc 8168 (OPS) Vol. II, Part I, Section 2, C4, 4.5.2		CE-7

Group 2

7.247

PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	PPQ	CE
7.247	Does the State ensure that all IFPs comply with measures that control the quality of the process (including obstacles check)?	1) Review mechanism established to ensure effective implementation. 2) Verify reports and results of flight validations (including assurance that adequate obstacle clearance has been provided). 3) Review how the State ensures that IFP packages also include a list of relevant obstacles and identification and description of controlling obstacles.	STD A11 App. 7, 5 PANS Doc 8168 (OPS) Vol. II, Part I, Section 2, C4, 4.1.2 & 4.6.1 Doc 9906 Vol. 1 & Vol. 5	Yes	CE-6

Group 2

7.249

PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	PPQ	CE
7.249	Does the State ensure that the IFPDS provider publishes obstacle clearance altitude/height (OCA/H)?	1) Review mechanism established to ensure effective implementation. 2) Review AIP AD 2.24 to see if published. 3) If aerodrome operating minima have been established by the State, verify if they are shown.	STD A4 11.10.7.2 A11 2.23 PANS Doc 8168 (OPS) Vol. II, Part I, Section 4, C5, 5.4 & C9, 9.4.3.1	Yes	CE-6

Group 3

7.253

PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	PPQ	CE
7.253	Does the State ensure that flight procedures are in accordance with the criteria promulgated by the State?	1) Review mechanism established to ensure effective implementation. 2) Verify that AIP procedures have been approved in accordance with the criteria promulgated by the State. 3) Sample approval records, as applicable: a) SID procedures (departures and arrivals) b) Approach procedures c) Circling procedures d) En-route procedures e) Holding procedures f) Noise abatement procedures g) Altimeter setting procedures h) Procedures for simultaneous operations on parallel runways. i) Procedures for SSR and transponder.	STD A11 2.34 & App. 7 PANS Doc 8168 (OPS) Vol. II GM Doc 9906 Vol. 1, 7.10	Yes	CE-6

Group 3

7.393

PQ No.	Protocol Question	Guidance for Review of Evidence	ICAO References	PPQ	CE
7.393	Does the State ensure that requirements for flight inspection are established and periodical flight inspections are provided for radio navigation aids?	1. Review mechanism established to ensure effective implementation. 2. Review flight inspection regulations and procedures. 3. Verify flight inspection reports.	STD A10 Vol. I, 2.2 & C3 GM Doc 8071 Vol. I, C1 to C7	Yes	CE-7

Thank You

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