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Internal Audit Report

on

The Aviation Safety Audit Process

IA/2021/6

Office of Internal Oversight

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EXECUTIVE SUMMARY

1. As part of its annual work plan for 2021 (C-WP/15114), the Office of Internal Oversight (OIO) carried out an audit of the Aviation Safety Audit Process. The audit was conducted in conformance with the International Standards for the Professional Practice of Internal Auditing[1].

2. The objectives of the audit were to assess the governance, risk management and internal controls, and the operational effectiveness and efficiency of the processes relating to the implementation of the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA).

3. The results of the audit showed that procedures and processes relating to the implementation of the USOAP CMA are well-designed and effectively implemented. In addition, the Monitoring and Oversight Office (MO) within the Air Navigation Bureau (ANB) constantly monitors and reviews its activities with the aim of continuously improving. Good practices identified include maintaining certification to the ISO 9001: 2015 (Quality Management Systems) standard; the implementation and use of the Asana project management tool to organise, document and track individual tasks relating to each USOAP CMA activity; and the development and use of a State Risk Profile tool which brings together data and intelligence information from regional offices and external stakeholders to support the annual planning process.

4. The USOAP CMA is a successful programme which is appreciated by States, however it is not fully funded by the regular programme budget. **In the period 2017 to 2019, 65% of non-staff costs were financed by the regular programme budget, 25% from the carry over (Efficiency Fund), and 10% from the Ancillary Revenue Generation Fund (ARGF).** In addition, three professional posts and one general service post are financed from the Efficiency Fund, the ARGF and a cost recovery fund. All of these are non-stable funding sources, which are not guaranteed in the future. Furthermore, three of the eight audit areas (LEG, ORG and AIG[2]) do not have a dedicated Standards and Procedures Officer, and there is heavy reliance on long-term secondees and consultants to carry out the core activities of the programme.

5. In particular, the regular programme budget provides no financing for the maintenance and development of critical IT tools including the Online Framework (OLF), the Electronic Filing of Differences (EFOD) System, as well as related systems for the Universal Security Audit Programme (USAP) and the Global Aviation Safety Oversight System (GASOS). The ARGF currently finances two professional staff posts in MO's IT development team and has provided one-off contributions of $600,000 from the 2016 surplus and a further $600,000 from the 2018 surplus to finance the various consultants employed as software developers over the last few years. Given the potential long-term unsustainability of ARGF financing, in particular from ARGF surpluses, there is a significant risk of lack of future funding for the maintenance and support of these IT systems. In addition, the major architecture/platform elements of the OLF application are coming to the end of their useful life and will need to be replaced in the near future.

6. Due to the Covid-19 pandemic, all on-site USOAP CMA activities have been suspended since March 2020. MO has therefore diverted resources to off-site activities (desk audits and off-site validations), the implementation of the GEUSR[3] recommendations, the development and reporting of the recommendations of the USOAP-AG[4], as well as other internal improvements.

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[1] IIA Standard 1321

[2] Primary aviation legislation and specific operating regulations (LEG); civil aviation organization (ORG); and aircraft accident and incident reporting (AIG)

[3] Group of Experts for a USOAP CMA Structured Review

[4] Ad Hoc USOAP CMA Advisory Group

7. The pandemic has also adversely affected MO's ability to provide on the job training (OJT) for candidates wishing to become qualified auditors. At the end of March 2021, there were 70 individuals waiting to complete OJT, which is the last stage of the USOAP CMA training process. Given that there is a shortage of qualified auditors in some of the technical areas, and with regard to some of the working languages, this issue needs to be addressed as it directly affects MO's ability to carry out full scope audits in every State. MO has recently developed a new Auditor Preparation course which should help to reduce some of the training required at the OJT stage. Nevertheless, reducing the backlog of individuals requiring OJT will be a challenge for MO once travel resumes.

8. Based on the current level of resources, it is not feasible for ICAO to audit all 193 States on a regular basis. **For 11% of States, the last USOAP CMA activity was more than 10 years ago, and for another 23% it was between 5 and 10 years ago. The considerable length of time between activities brings into question the accuracy and reliability of the EI scores for these States.** The pandemic has also exacerbated the situation further due to fewer on-site activities. In line with recommendations of the GEUSR and USOAP-AG, there is a need to re-evaluate the calculation of the EI score to maintain its relevance and to provide a more accurate reflection of the status of aviation oversight in a State. Options could include combining it with other measures, and/or to report separate EI scores for the different elements of the level of safety oversight in a State. Further efforts should also be made by MO to reduce the average length of time between audits and other validation activities, taking into account the availability of resources. MO should establish a policy on the maximum length of time between audits, and a maximum period for which a Corrective Action Plan (CAP) will be considered relevant for validation. MO has already started working on developing a policy for the latter.

9. A CAP is a plan of action prepared by a State to eliminate the cause of a deficiency or finding identified during a USOAP CMA audit. MO staff at headquarters assess the initial CAP to determine whether it is acceptable in addressing the audit finding/identified deficiency, whilst review of subsequent updates and ongoing monitoring of the implementation of a CAP is the responsibility of the regional offices. Keeping up with CAP assessments is extremely resource intensive, and neither headquarters nor the regional offices have sufficient resources for this, especially given that each CAP is a living document, which a State will continuously update. **As at June 2021, there were 36,407 open CAPs of which 6,250 (17%) had not yet been assessed by ICAO, and another 15,110 (42%) where States had entered subsequent updates, and therefore the initial assessment by ICAO may no longer be valid.** MO should reassess the current process for evaluating the initial acceptability of a CAP and any future CAP updates with a view to streamlining the process and thereby reducing the resources required for this work. Internal guidance on the assessment and monitoring of CAPs should be updated and included in the next edition of Doc 9735, and regional office staff provided with the required training.

10. States record their own assessment of the implementation status of each CAP in the OLF. Based on data recorded as at June 2021, States considered that 30% of their CAPs were complete (11,097 of the 36,407 open CAPs). In interviews with OIO, regional offices commented that States are sometimes frustrated when, due to the prioritization of limited resources, ICAO is not able to validate their actions on a timely basis and the efforts made do not result in an immediate beneficial change to their EI score. Long delays in validating CAPs creates a risk that States may lose the motivation and incentive to implement further required actions.

Overall Conclusion

11. Based on the results of the audit, OIO has given an audit rating of **Some Improvement Needed**. This means that controls evaluated are generally adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met. However a few specific control weaknesses or areas for improvement were noted. **Annex 1** provides further information on the definition of audit terms used in OIO's internal audit reports.

12. The most significant risk identified during the audit relates to the adequacy and stability of funding for the USOAP CMA programme. Other areas for further improvement include: re-evaluating the calculation of the EI score to maintain its relevance and accuracy; reducing the average length of time between audits and other validation activities; streamlining and implementing policy changes to the CAP process; and developing outcome based Key Performance Indicators (KPIs) to measure the success and impact of the USOAP CMA programme.

13. All recommendations in the report have been accepted. Management comments and proposed actions to implement the recommendations are detailed in the Management Action Plan at **Annex 2**.

Acknowledgement

14. OIO wishes to thank management and staff for their assistance and cooperation during the audit.

RESULTS OF THE AUDIT

Background

15. To determine the safety oversight capabilities of its 193 Member States, ICAO carries out continuous monitoring activities to assess the effective implementation[5] by the States of the eight critical elements required for the effective implementation of international and national safety-related standards, policies and associated procedures.

16. Under the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA), ICAO conducts different types of continuous monitoring activities, including audits, ICAO Coordinated Validation Missions (ICVMs), Integrated Validation Activities (IVAs) and off-site validation activities.

- **A CMA audit** is an on-site activity in which an ICAO team visits a State to conduct a systematic and objective assessment of the State's safety oversight system, using a set of Protocol Questions (PQs) for each selected audit area and recommends the issuance of any new findings to address identified deficiencies in the State's safety oversight system.

- **A desk audit** (i.e. documentation based audit) is an off-site activity designed to assess those States whose security situation, as classified under the United Nations Security Level System, precludes an on-site activity by ICAO and/or whose limited level of aviation activities does not warrant an on-site activity. A desk audit may also be used when an on-site activity is neither feasible nor possible due to extraordinary circumstances, such as the ongoing pandemic. A desk audit will help States gauge the level of their civil aviation safety oversight system, identify shortcomings and weaknesses, and prepare them for an eventual on-site activity once conditions permit. A desk audit focuses exclusively on the PQs that do not require an on-site activity. The first ever desk audit was carried out in 2019.

- **An ICVM** is an on-site activity in which an ICAO team of subject matter experts visits a State to collect and assess evidence provided by the State to demonstrate that it has implemented corrective actions to address previously identified findings and/or deficiencies. The evidence collected is reviewed and validated at ICAO Headquarters.

- **An IVA** is a limited scope on-site activity, integrated within a scheduled visit to a State by ICAO or its safety partners. During the activity, the subject matter expert(s) collects evidence to demonstrate that the State has implemented corrective actions to address a limited number of previously identified findings and/or deficiencies. This evidence is then reviewed and validated at ICAO Headquarters.

- During **an off-site validation activity**, an ICAO team of subject matter experts assesses corrective actions implemented by a State to address previously identified findings related to PQs which do not require an on-site activity.

17. The Monitoring and Oversight Office (MO) within the Air Navigation Bureau (ANB) is responsible for the management of the USOAP CMA in coordination with other related sections and the regional offices. It comprises the Safety and Air Navigation Oversight Audit Section (OAS) and the Oversight Support Unit (OSU).

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[5] The rate of Effective Implementation (EI) of the Critical Elements (CEs) is an indicator of a State's safety oversight capabilities.

18. The number of USOAP CMA activities of each type carried out over the last five years is shown in **Table 1** below. However it should be noted that all on-site activities were suspended from March 2020 as a result of the Covid-19 pandemic. Resources were redirected to off-site activities, including Corrective Action Plan (CAP) assessments, implementation of the GEUSR[6] recommendations, the development and reporting of the recommendations of the USOAP-AG[7], and other internal improvements.

Table 1 – USOAP CMA activities carried out between 2016 and 2020

	2016	2017	2018	2019	2020
CMA audit	12	11	13	9	2
Desk audit				1	2
ICVM	17	21	15	17	5
IVA	8	14	13	6	8
Off-site validation	11	9	6	1	10
Total	48	55	47	34	27

Audit Objectives and Scope

19. The objectives of the audit were to assess the governance, risk management and internal controls, and the operational effectiveness and efficiency of the processes relating to the implementation of the USOAP CMA.

20. The scope of the audit covered CMA audits (including desk based audits), ICVMs, and off-site validation activities. It did not include State Safety Programme Implementation Assessments (SSPIAs). SSPIAs complement, and do not impact, the State's Effective Implementation (EI) score. They do not generate findings, nor require the State to submit a Corrective Action Plan (CAP).

21. The audit did not include an assessment of the USOAP CMA methodology itself, but rather the effectiveness and efficiency of internal processes to implement the USOAP CMA.

Audit Findings and Recommendations

I.   Financial and Human Resources

Non-Staff Costs

22. The USOAP CMA programme is not fully funded by the regular programme budget. A significant proportion of non-staff costs (mainly travel, consultants and outsourcing) is financed from non-stable funding sources, which may not be sustainable in the future. In addition, the total cost of the programme is not readily transparent due to the various sources of funding, which often change from one year to the next depending on where the necessary resources can be obtained.

23. As shown in **Figure 1**, in the period 2017 to 2019 (i.e. normal operations), the average proportion was **65% from the regular programme budget, 25% from the carry over (Efficiency Fund), and 10% from the Ancillary Revenue Generation Fund (ARGF)**. In addition to this, MO was given a one-off additional amount of $750,000 from the carry over to finance the implementation of the GEUSR recommendations over the period 2019 to 2021.

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[6] Group of Experts for a USOAP CMA Structured Review
[7] Ad Hoc USOAP CMA Advisory Group

Figure 1 – USOAP CMA expenditure by funding source
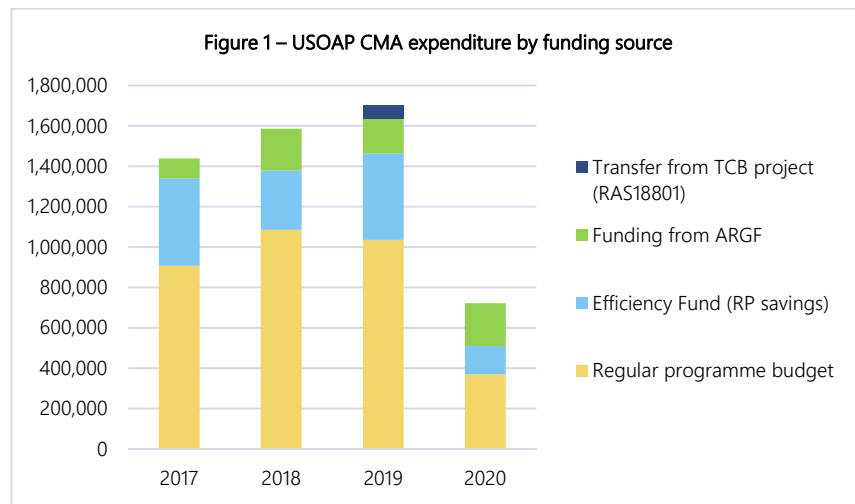
Human Resources

24. As shown in **Table 2**, there are 20 established posts funded by the regular programme budget. Four other posts are financed from other sources (the ARGF, the carry over and a cost recovery fund).

25. Only five of the eight audit areas have a dedicated Standards and Procedures Officer (SPO)[8]. These officers are essential to ensure standardization of USOAP CMA activities and findings, however MO is reliant on a number of long term secondees, paid for directly by the sponsoring States, to carry out the functions of an SPO, particularly in the technical areas not covered by ICAO staff. Most of these long term secondees are assigned to ICAO for two or three years, with the possibility of an extension. However it takes time for these experts to be trained as USOAP CMA auditors and to become fully familiar with the work of the section. In particular, all of the current secondees joined in mid-2019 or later, and have not been able to finish their on the job training due to the pandemic. Then, at the end of their secondment, the business knowledge that they have acquired is lost to MO.

Table 2 – USOAP CMA staffing by funding source and category

	Director	Professional	General Service	Total
RP established post	1	11	8	20
Efficiency Fund (carry over)			1	1
ARGF		2		2
Fund 1211*		1		1
Secondees		6		6
Total	1	20	9	30

This fund receives money deposited from States for cost recovery activities such as workshops or other types of interactions with States

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[8] There is no dedicated SPO staff position for LEG (primary aviation legislation and specific operating regulations, ORG (civil aviation organization); and AIG (aircraft accident and incident reporting).

26. There is also significant reliance on medium and long-term consultants[9] to carry out core tasks, in particular for IT support and for the collection and analysis of data to support the USOAP CMA. There are currently five consultants working as IT software developers, one works on a part time basis as the Quality Systems Manager, and three are working on the GEUSR recommendations, the collection and analysis of data/information for monitoring purposes, as well as other regular ongoing work of MO.

27. Consultants are less costly than staff and provide more flexibility, however there are risks associated with using this type of resource, particularly if medium term consultants are used for ongoing work. Under the consultancy policy, a medium term consultant can only be employed for a maximum of 11 months at a time, after which they must take a one-month break, and for a maximum of three years (i.e. three contracts of 11 months). If the consultant cannot be retained after this, then the institutional knowledge that they have built up is lost.

IT Tools

28. MO has a dedicated IT development team to maintain and update the USOAP CMA IT tools (the Online Framework (OLF) and the Electronic Filing of Differences (EFOD) System). In addition, the team supports similar IT tools for three other programmes: the Universal Security Audit Programme (USAP), the Global Aviation Safety Oversight System (GASOS), and the aviation safety arm of the World Food Programme. The latter pays an annual maintenance fee to ICAO for support of its tool.

29. ICT provides back office expertise and support in relation to the IT infrastructure (software, hardware, disaster recovery, security arrangements, etc.), whilst MO focuses on implementing the business requirements. These requirements are constantly evolving and changing, and new projects are also being developed and implemented to increase efficiency, for example to provide auditors in the field with a tablet solution to record their evidence and findings directly in the OLF whilst on mission, thereby avoiding the need to use USB sticks.

30. **The OLF is an essential and fundamental tool for implementing the USOAP CMA programme, however despite the critical need to provide ongoing support for its maintenance and development, there is no funding for this in the regular programme budget**. Two professional staff posts in the IT development team are financed by the ARGF (further contribution to the ICAO work programme). The ARGF has also provided one-off contributions of $600,000 from the 2016 surplus and a further $600,000 from the 2018 surplus to finance the various consultants employed by MO as software developers over the last few years.

31. There is a significant risk to ongoing maintenance and support of all of these IT systems given the potential unsustainability of ARGF funding in the long term, in particular funding from ARGF surpluses. In addition, the major architecture/platform elements of the OLF application are coming to the end of their useful life and will need to be replaced in the near future.

32. Reliance on temporary IT consultants also gives rise to an increased risk of loss of institutional memory and business knowledge. IT is a competitive market, and ICAO is not able to provide these consultants with the job security or benefits provided to regular staff. Also, it takes time for new consultants to fully learn and understand the business, and output is reduced while new consultants are being trained. Mitigating actions implemented by MO require ensuring that the pool of consultants is large enough to maintain resilience and to retain the necessary systems knowledge. However this requires a stable source of funding.

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[9] Currently 7 medium term and 2 long term consultants.

33. **Figure 2** shows the breakdown of non-staff costs in 2017 to 2020 by type of expenditure.

Figure 2 – USOAP CMA expenditure by expense type
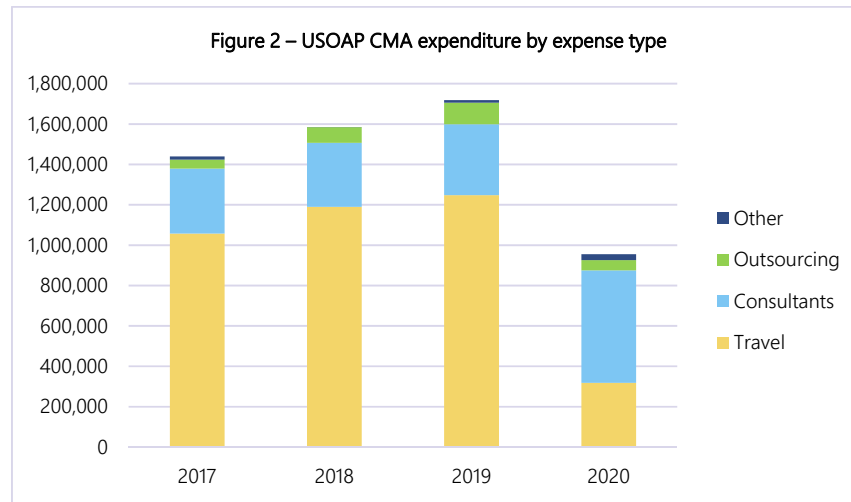
Recommendation 1	Stable funding for the USOAP CMA programme
Priority	High

To increase transparency and mitigate risks, ANB should analyze the programme budget requirements in order to present a clear and fully costed budget proposal to the Council to ensure sufficient and stable funding for the USOAP CMA programme in the 2023 to 2025 regular programme budget.

Closing criteria:

Analysis and completion of a fully costed budget proposal identifying the ongoing and future needs for staffing and for non-staff funding (namely travel, consultants and IT related costs) for the next triennium.

Designee Programme

34. A designee is a recognized subject matter expert who has been evaluated and approved by MO to carry out specified USOAP CMA functions. They must have prior experience in conducting USOAP CMA audits and/or ICVMs. Policies and procedures for selecting and approving designees, as well as the fees payable, are documented in MO's *Designee Programme Procedure*. There are currently eight approved experts on the roster of designees.

35. In the same way as consultants, USOAP CMA designees can be engaged when the need for the required services cannot be met by existing staff resources due to a lack of specialized knowledge, expertise and/or capacity; or when there is a surge in the USOAP CMA workload.

36. OIO selected a sample of two designees and confirmed that established procedures were followed in approving and issuing the designation. However designees are engaged for specific, short-term tasks, as and when needed using a Direct Purchase Order (DPO) rather than a consultancy contract. DPOs are designed and intended to be used for the purchase of goods/services from a company, and not from an individual.

37. Following an OIO audit, the Secretary General issued an IOM on 22 July 2020, reminding allotment holders of their obligation to comply with the rules relating to the use of DPOs. Exceptions have been
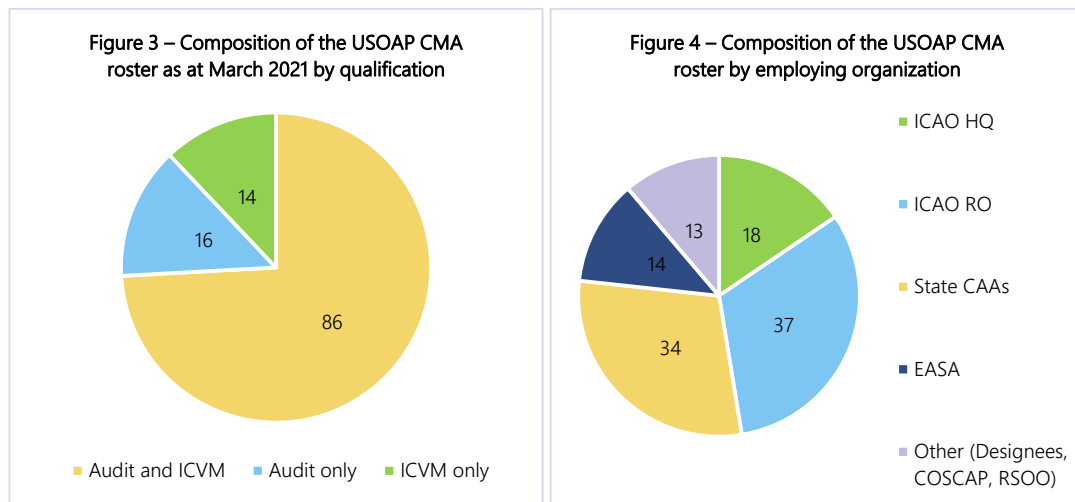
granted to Languages and Publications (LP) and the Global Aviation Training Office (GAT) to use DPOs to hire translators, trainers and experts, however no such waiver has been given to ANB.

38. Granting exceptions to established rules is not the best solution to address an underlying problem. In all of these cases, there is a need to identify a suitable form of contract, as well as streamlined procedures that can be used to hire individuals for short assignments provided they have already been pre-assessed and are part of an established roster.

Recommendation 2	Use of DPOs
Priority	High
ANB should work together with HR to identify a suitable form of contractual agreement to engage those individuals for specific, short-term tasks, who have already been pre-assessed and are part of an established roster.	
Closing criteria:	
Establishment of a suitable form of contractual agreement to engage USOAP CMA designees.	

II. Roster of USOAP auditors and experts

39. As at the end of March 2021, there were 116 qualified auditors/subject matter experts (SMEs) on the USOAP CMA roster, including the eight designees (**Figure 3**). As shown in **Figure 4**, 55% of the individuals on the roster were either from ICAO headquarters or from the regional offices.

Figure 3 – Composition of the USOAP CMA roster as at March 2021 by qualification

- Audit and ICVM
- Audit only
- ICVM only

Figure 4 – Composition of the USOAP CMA roster by employing organization

- ICAO HQ
- ICAO RO
- State CAAs
- EASA
- Other (Designees, COSCAP, RSOO)

40. OIO reviewed the training records for a sample of ten individuals. The process followed was in line with the established USOAP CMA training policy.

41. Qualification as a Team Leader or an on the job training (OJT) provider is not recorded in the OLF roster. According to MO, Team Leaders receive additional training and OJT, and OJT providers are selected because of their experience and performance in prior USOAP CMA activities.

Recommendation 3	Criteria and training process for Team Leaders and OJT providers
Priority	Medium

Going forward, MO should establish relevant criteria and document a more formal training/qualification process to designate an individual as an audit/ICVM Team Leader or OJT provider.

Closing criteria:

Establishment of a defined and documented process for becoming an audit/ICVM Team Leader or OJT provider.

42. Although MO has taken steps in recent years to strengthen and address skills gaps in the composition of the roster, there are still shortages in some of the technical areas, notably AIG[10] where there are only nine qualified auditors on the roster, and in the range of language skills. The USOAP CMA working languages are English, French and Spanish. **Table 3** shows that all 116 auditors/SMEs on the roster can work in English, however only 31% and 28% can work in French and Spanish respectively.

Table 3 – Language proficiency of USOAP/CMA auditors/SMEs

Language	No. of auditors/SMEs	% of total roster
English	116	100
French	36	31
Spanish	33	28
Arabic	9	8
Chinese	5	4
Russian	7	6

43. As at the end of March 2021, there were 70 individuals waiting to complete OJT. This is the last stage of the USOAP CMA training process prior to becoming a fully qualified auditor.

44. MO prioritises OJT for those individuals with skills in the areas needed. However it is not always possible to provide OJT opportunities on every mission since this depends on the scope and suitability of the audit; whether there is a qualified person on the team to provide OJT in the required technical area; and whether there is sufficient budget for the travel costs. In one of the audits carried out at the end of 2019, the State commented on the additional burden caused by the high number of trainees receiving OJT (a total of five auditors plus four auditors undergoing OJT). Reducing the backlog of individuals requiring OJT will therefore be a challenge for MO once travel resumes.

45. In order to alleviate the backlog and to reduce the amount of training needed during OJT, MO has recently developed a new Auditor Preparation course, which will go live in July 2021. Candidates will take this course immediately prior to undertaking OJT.

46. In order to maintain their knowledge and skills up to date, qualified auditors/SMEs are required to carry out at least one USOAP CMA activity every 18 months. The "activity currency" for each individual is recorded in the roster as a percentage i.e. 100% is shown when an activity is completed. This percentage

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[10] Aircraft accident and incident investigation

automatically reduces every month over the 18-month timeline. MO has a policy and procedures in place to ensure that, after 18 months, an auditor/SME receives familiarization training covering methodology and technical issues prior to being assigned to another USOAP CMA activity. Due to the length of the pandemic, virtually no one on the roster will still be current by the time on-site activities resume. In order to address this issue, OIO was informed that MO is planning to provide group familiarization training sessions for each technical area in the fall of 2021.

III. Gender balance

47. **Table 3** shows that, of the 29 occupied staff and secondee positions in MO, 17 of the 20 professionals are male, and 8 of the 9 general service staff are female. In addition, analysis of the USOAP CMA roster of auditors and SMEs showed that 95% are male and only 5% are female. This imbalance in the number of females at the professional level is a reflection of the general shortage of qualified females in the aviation sector worldwide.

Table 4 – MO staffing by gender

	Director	Professional	General Service	Total
Male	1	16	1	18
Female		3	8	11
Vacant		1		1
Total	1	20	9	30

48. ICAO established a Gender Equality Implementation Plan in 2017, however it is unclear how this plan is being translated into concrete actions at the bureau/section level within the Secretariat.

Recommendation 4	Gender equality
Priority	Medium

MO should work closely with SPCP to identify any specific actions that can be taken to implement the ICAO Gender Equality Implementation Plan at the Section level and/or within the USOAP CMA programme to improve the gender balance.

Closing criteria:

Identification of any additional actions that can be taken to address the gender equality gap.

IV. Quality Management System

49. MO has been ISO 9001 certified since 2002. Certification to the ISO 9001: 2015 (Quality Management Systems) standard was achieved in September 2017 and recertification was obtained in October 2020. OIO reviewed the external assessor's report as well as the reports from the interim surveillance audits carried out in May 2020 and May 2021. The overall conclusion from these external assessments is that the Quality Management System is mature and well managed. No significant observations were made and no corrective actions were required.

50. MO maintains a risk register covering its activities. There is evidence that risks are reviewed and updated regularly and agreed actions are monitored. MO also maintains a Running Action Items List (RAIL) to capture important activities/improvements that need to be implemented, and to track any process changes.

## V. Planning of USOAP CMA activities

Annual Planning Exercise

51. OIO reviewed the annual planning process for selecting on-site audits and ICVMs. Off-site validations are reported in the Electronic Bulletin[11] only once they have been completed since they are desk-based, and the timing is more flexible.

52. Audits are selected based on an assessment of risk, complemented by other indicators and information collected on States such as the EI score, date of last audit, previous postponements, traffic levels, accident levels, worldwide governance indicators, etc. The annual plan is not based solely on risk since the USOAP principle of universality requires that there be an equitable regional distribution of activities. However the emphasis for on-site activities is on those States which require more assistance.

53. States are considered for an ICVM if they have implemented 75% of their CAPs in a technical area, and have uploaded the evidence in the OLF to support completion.

54. OIO reviewed the State Risk Profile tool (an Excel spreadsheet) developed by MO to record and analyze the data collected for planning purposes. Intelligence information is also obtained from regional offices using a standard questionnaire, and from external stakeholders on the monitoring activities that they perform. The planning tool and methodology have evolved and matured over the last few years with the inclusion of additional sources of data. The tool is complemented by internal discussions between MO and the regional offices regarding which States should be prioritized, taking into account the available resources. In interviews conducted by OIO, regional office staff reported that there was a good level of communication and coordination between themselves and MO.

55. Once the list of audits/ICVMs is published in the Electronic Bulletin it is very difficult to make changes. Although MO identifies a back-up list of States as part of the annual planning exercise, States need sufficient notice to prepare for an on-site activity and it is not always possible to replace a planned activity with another, especially if the scope is different. Postponements and cancellations therefore have a significant effect on the programme and on staff scheduling and on the job training. This issue was discussed recently during the Ad Hoc USOAP CMA Advisory Group (USOAP-AG) review and recommendations were made to try to address the problem.

Scope of audits

56. There are eight audit areas[12], however not all audits and ICVMs cover all of the technical areas. MO has taken steps in recent years to increase the number of technical areas covered in each activity. **Figure 5** shows that, for audits, the average number increased substantially in 2019 to 6.8 out of 8. Nevertheless, some of the technical areas are audited less frequently than others. **Figure 6** shows that five of the eight areas were included in at least 70% of all audits carried out in the last five years whilst coverage of AGA was the lowest, and was included in only 46% of audits.

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[11] The USOAP CMA Activity Plan is published twice a year via an Electronic Bulletin. It lists the completed and planned CMA audits, ICVMs and off-site validation activities for the current and coming years.
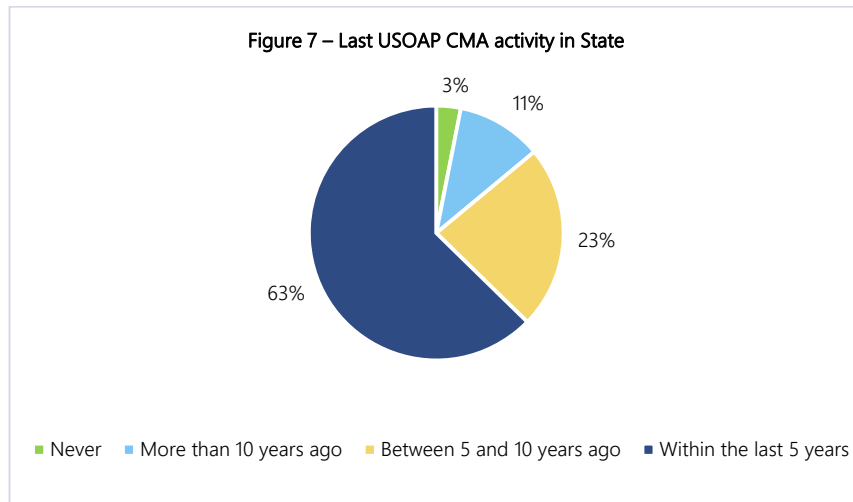
[12] Primary aviation legislation and specific operating regulations (LEG); civil aviation organization (ORG); personnel licensing and training (PEL); aircraft operations (OPS); airworthiness of aircraft (AIR); aircraft accident and incident reporting (AIG); air navigation services (ANS); and aerodromes and ground aids (AGA).

Figure 5 – Scope of Audits - 2016-2020

Figure 6 – % of audit areas covered - 2016-2020
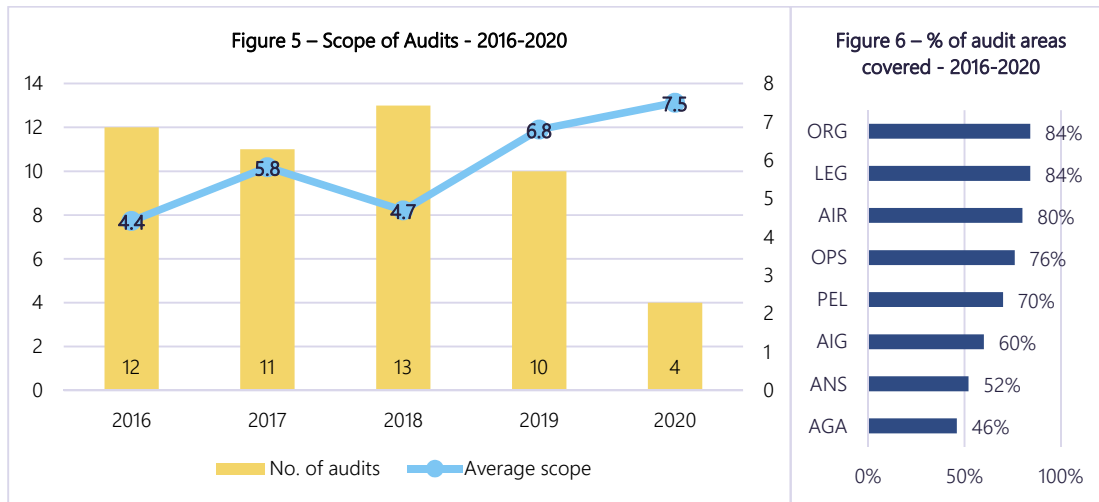
57. For ICVMs, coverage of all audit areas was at least 67%, with the exception of AIG, which was included in only 40% of ICVMs.

58. The lower level of coverage of ANS and AGA, as well as AIG is mainly due to a shortage of experts in these technical areas (in particular the lack of an MO staff member responsible for AIG), and/or because of language factors (see paragraph 42). AIR, OPS and PEL have been included in the USOAP programme from the beginning, and so are more established, with many experts in these areas.

59. In one of the audits reviewed by OIO, AIG could not be included in the scope due to the lack of an available expert for the mission. The State expressed concern that their progress would not be considered in this area and that this would negatively impact their EI score. This kind of occurrence demonstrates the need for MO to have internal expertise in this area, and to increase the roster as much as possible in the areas where there are currently shortages.

Coverage of States

60. Based on the current level of resources, it is not feasible for ICAO to audit all 193 States on a regular basis, and with the move to continuous monitoring, some of the more advanced States may not have received a USOAP CMA activity for several years. For 34% of States, the last activity was more than 5 years ago (**Figure 7**). Six States (3%) have never been audited due to the prevailing security situation in the country.

Figure 7 – Last USOAP CMA activity in State

Legend: Never · More than 10 years ago · Between 5 and 10 years ago · Within the last 5 years

Values shown: 3%, 11%, 23%, 63%

61. The considerable length of time since an activity was last carried out brings into question the accuracy and reliability of the EI scores for these States. In addition, the overall EI calculation may include PQs which have been assessed at different times during different activities. For example, an ICVM or other validation activity will only review progress made in implementing those PQs assessed as unsatisfactory in a previous audit. However the status of those PQs previously assessed as satisfactory may have changed in the meantime.

62. The pandemic has exacerbated the situation further due to fewer activities and therefore fewer updates to the EI, whilst the effects of the pandemic itself may have resulted in decreased conformance by States in those areas previously assessed as satisfactory.

63. The GEUSR made several recommendations to increase the flexibility of the audit system and to keep the EI more up to date. These included reducing the number of PQs, identifying priority PQs, and introducing new types of audit activities. In response to this, MO has prepared a draft proposal for three new types of activities, namely focused audits, follow-up audits and integrated audit activities.

64. The GEUSR also recommended providing additional metrics to give a clearer picture of where the strengths and weaknesses are within a State's safety oversight system. OIO noted that the increased focus on the EI calculation in recent years means that the emphasis is now on targets and comparisons between States and regions. This increases the risk that States may be reluctant to accept an audit if there is a possibility that their EI score will be lower as a result. On the other hand, validations are easier for States to accept as their EI score can only improve or remain the same.

Recommendation 5	Maintain the relevance of the EI score
Priority	High

MO should:

i. Re-evaluate the calculation of the EI score in line with recommendations of the GEUSR to maintain its relevance and to provide a more accurate reflection of the current status of aviation oversight in a State. Options could include combining it with other measures, and/or to report separate EI scores for the different elements of the level of safety oversight in a State.

ii. Establish a policy on the maximum length of time between audits, and a maximum period for which a CAP will be considered relevant for validation, to ensure that the EI score for all States remains more up to date.

Closing criteria:

i. Re-evaluation of the current methodology for deriving a meaningful score for the assessment of the level of safety oversight in a State.

ii. Implementation of actions to reduce the average length of time between USOAP CMA activities in each State.

VI. Selection of Audit/ICVM team members

65. OIO selected a sample of five on-site activities (two audits and three ICVMs) and three off-site activities carried out in 2019 and 2020 and reviewed the process for selecting the team members and the overall composition of the team.

66. In order to ensure consistency, the team leader for an audit is always one of the technical officers from the Oversight Audit Section at headquarters. However given that the number of qualified team leaders at headquarters is limited (there are currently five), the team leader for an ICVM is either from headquarters or from one of the regional offices (there are currently eleven qualified ICVM team leaders in the regional offices).

67. The credibility of the USOAP CMA programme depends on ensuring the independence of team leaders and team members and on confirming that they have no actual or perceived conflicts of interest.

68. Until recently, MO has used an informal, undocumented policy in considering conflicts of interest when assigning resources to USOAP CMA activities. This includes not assigning a team member to an activity in a State of which they are a national. In addition, regional office staff are not assigned to carry out an audit in a State accredited to their own region. MO tries to follow this latter policy for ICVMs as well, however this is not always possible due to limited resources. In two of the three ICVMs sampled by OIO, one of the regional office team members was from the same region as the State.

69. Conflicts of interest could arise in cases where regional office staff are involved in providing technical assistance to a State in their region and are then involved in validating corrective actions taken by the same State. A perceived conflict of interest may also exist simply because each regional office has specific performance targets to increase the level of the EIs in their States.

70. In order to mitigate these potential risks, MO places reliance on the professionalism and training of all qualified auditors and SMEs. Also, in the case of ICVMs, the team leader is not selected from the same region, and the team members themselves can only make a proposal on the status of an individual PQ. Headquarters staff carry out an independent validation of the evidence and make the final determination.

71. MO has recently developed a formal *Policy on Auditor/Assessor Conflicts of Interest*, which was issued during the OIO audit on 16 April 2021. This Policy states that several factors will be considered when selecting team leaders and team members, including the State/regional office of origin and past interactions with the State. An appendix sets out the criteria for consideration of a conflict of interest. Auditors/SMEs will be required to proactively disclose any such conflicts prior to engaging in a USOAP CMA activity. In future MO will include a standard paragraph in the e-mail that is sent to team members confirming their participation in an activity, reminding them of the need to declare any such conflicts of interest.

VII. Implementation of USOAP CMA activities

72. OIO selected a sample of five USOAP activities carried out in 2019 and 2020 to review the process followed and the related supporting documents.

73. The steps required for each activity are clearly documented, organised and tracked using a project management tool (Asana). Prior to October 2020 the tool used was Tabillo. These tools allow each USOAP activity to be created as a project and individual tasks are assigned to team members with specific deadlines. Standard templates (workflows) have been established for each different type of USOAP CMA activity and this ensures that there is consistency in how the work is carried out and documented. Use of the tool also allows MO to monitor the dates when each task was completed.

74. Due to the Covid-19 pandemic, all on-site activities were cancelled as of March 2020. Resources in MO have therefore been redirected to virtual/off-site activities, the implementation of the GEUSR recommendations, the development and reporting of the recommendations of the USOAP-AG[13], and other internal improvements.

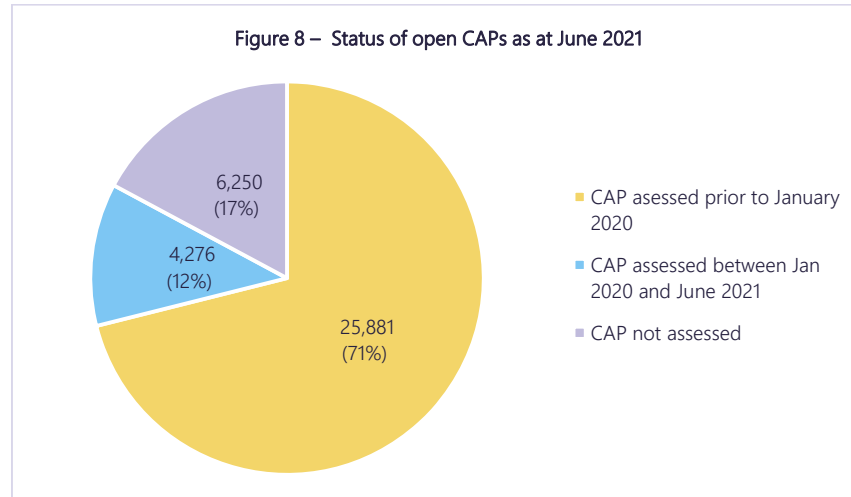## VIII.   Assessment and monitoring of Corrective Action Plans

75. A Corrective Action Plan (CAP) is a plan of action prepared by a State to eliminate the cause of a deficiency or finding identified during a USOAP CMA audit. A CAP is prepared for each unsatisfactory PQ and is documented in the OLF.

76. OIO found that internal guidance on the assessment and monitoring of CAPs (as documented in two Powerpoint presentations) is out of date and therefore does not fully describe what actually happens in practice.

Initial assessment for acceptability

77. The Oversight Audit Section (OAS) is responsible for reviewing and assessing an initial CAP after an audit to determine whether it is acceptable in addressing an audit finding/identified deficiency. Feedback is provided to the State on whether the proposed CAP fully addresses, partially addresses, or does not address the finding.

78. However the CAP is a living document, which is updated by a State as required. It is therefore difficult for ICAO to continuously monitor and assess subsequent updates to a CAP after the initial assessment, and to identify the specific changes which States have made. In addition, although the Regional Office Manual (Part 3) indicates that it is the responsibility of the regional offices to review the acceptability of subsequent CAP updates, when interviewed by OIO, at least some of the regional offices consider that this is the responsibility of headquarters.

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[13] Ad Hoc USOAP CMA Advisory Group

79. Data extracted from the OLF showed that as at June 2021, there were 36,407 open CAPs (**Figure 8**). ICAO has, over the years, assessed 30,157 of these for acceptability, however in 50% of these (15,110) the States have entered subsequent updates and therefore the initial review by ICAO may no longer be valid.

Figure 8 – Status of open CAPs as at June 2021

- CAP asessed prior to January 2020
- CAP assessed between Jan 2020 and June 2021
- CAP not assessed

6,250 (17%)
4,276 (12%)
25,881 (71%)

80. Keeping up with CAP assessments is extremely resource intensive, and neither headquarters nor the regional offices have sufficient resources for this. The assessment of CAPs is therefore a lower priority, especially since lack of assessment by ICAO does not prevent a State from continuing to work on its CAP. During the pandemic OAS has had more time/resources to carry out these assessments and, as shown in Figure 8, has completed more than 4,000 to help reduce the backlog. However, there is a high risk that once on-site activities resume the backlog will increase again.

81. In order to address this issue, MO is considering informing States that CAPs older than 5 years will no longer be prioritized by ICAO. In addition, OAS has submitted a request for several amendments to the CAP module in the OLF to make CAP management more effective for both ICAO and the States. Nevertheless, it would be useful to review and reconsider the whole process to determine whether the extent of the work currently carried out by ICAO to assess a CAP is actually required.

Recommendation 6	Review of the process for assessing the acceptability of a CAP
Priority	High

MO, together with the regional offices, should review and reassess the current process for evaluating the initial acceptability of a CAP and any future CAP updates with a view to streamlining the process and thereby reducing the resources required for this work.

Closing criteria:

Streamlined process for evaluating the initial acceptability of a CAP and any future CAP updates.

Monitoring of CAP implementation

82. Regional offices are responsible for the ongoing monitoring of the implementation of CAPs by States in their region. They provide advice and guidance to the States as necessary, and recommend a State for a validation activity once they have implemented 75% of their CAPs. However it is a time consuming

exercise to review all of the updates and supporting documentation submitted in the OLF and regional offices do not have the resources necessary to undertake this work on a continuous basis.

83. OIO noted that the SAM region has developed its own local procedure for how the regional office monitors the implementation of CAPs[14]. This is an example of good practice which could be replicated in the other regions in order to clarify and standardize the process across ICAO.

84. States update the OLF with information on how they have implemented each CAP and upload the required evidence. They also record their own assessment of the implementation status of each CAP. As at June 2021, States considered that 30% of their CAPs were complete (11,097 of the 36,407 open CAPs).

85. The demand for validation of implemented CAPs is greater than the resources available to carry out this work. In interviews with OIO, regional offices commented that some States have expressed frustration in cases where they have completed their CAPs however their efforts have not resulted in a beneficial change to their EI score since ICAO has not yet validated the actions taken. This creates a risk that States may lose the motivation and incentive to implement further required actions.

Recommendation 7	Internal guidance on the assessment and monitoring of CAPs
Priority	Medium

MO, in consultation with the regional offices, should update the internal guidance on the assessment and monitoring of CAPs to clarify the roles and responsibilities of headquarters and regional offices, to identify any efficiencies in the current process, and to provide appropriate training to regional office staff.

Closing criteria:

Review and update of the internal guidance on the assessment and monitoring of CAPs. Provision of training to regional office staff.

IX. Key Performance Indicators

86. MO has established a number of Key Performance Indicators (KPIs) to monitor and measure the outputs from USOAP CMA activities (**Table 5**).

Table 5 – Performance against KPIs in the period 2018 to 2020

Description of KPI	Target	2018	2019	2020	Remarks
No. of USOAP-CMA audits per year	8	13	10	2	plus 2 desk audits in 2020
No. of ICVMs per year	15 (4 with reduced scope	15	17	3	plus 2 virtual ICVMs in 2020
No. of off-site validation activities per year	15	20	7	18	
Satisfaction rate on State Feedback forms from CMA activities	85%	88%	90%	86%	

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[14] *PRO SAM 001: Procedure for Monitoring and Supporting the Completion of Corrective Action Plans (CAPs) and the Review of Priority Protocol Questions (PQs) of SAM States.*

87. Due to the pandemic, targets were not met for the number of audits and ICVMs carried out in 2020, however the target for off-site activities was exceeded due to the switch from on-site to off-site activities.

88. A further KPI, which is included in the ICAO Business Plan and Budget, is to assess 90% of CAPs when more than 75% progress is made. However performance against this KPI is not measured since CAPs are updated on a continuous, ongoing basis and it is not clear when and how to obtain the relevant data.

89. In addition to these KPIs, team leaders and team members complete a feedback survey after each on-site activity to identify whether any improvements are needed. MO considers all suggestions made, and takes appropriate follow-up action. In addition, MO tracks the on-time delivery of reports against established timelines. Continuous monitoring has led to the gradual elimination of delays in issuing final reports (**Table 6**).

Table 6 – Other performance measures

	2018	2019	2020
TL feedback forms	88%	87%	80%
TM feedback forms	93%	94%	92%
On time delivery of reports to States	86%	93%	100%

90. All of the current KPIs are activity or output based, and targets are based on how much can be achieved within the given resources. Although these output KPIs are useful, outcome KPIs would provide a better indication of the success and impact of the USOAP CMA programme.

Recommendation 8	Key Performance Indicators

Priority   Medium

MO should:

i. Review the formulation of current KPIs to ensure that they are a meaningful measure of performance that can be tracked over time.

ii. Develop outcome based KPIs to measure the success and impact of the USOAP CMA programme.

Closing criteria:

i. Revision of current KPIs to ensure that they are a meaningful measure of performance that can be tracked over time.

ii. Development of outcome based KPIs.

ANNEX 1: DEFINITION OF AUDIT TERMS

Audit Ratings

In providing an overall assessment of the results of the audit, OIO uses the following standardized audit rating definitions:

Audit Assessment	Definition
Effective	Controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met.
Some Improvement Needed	A few specific control weaknesses or areas for improvement were noted; generally however, controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met.
Major Improvement Needed	Several key control weaknesses were noted and/or several areas of strategic/high importance were identified where significant improvements can be made to increase efficiency and effectiveness.
Unsatisfactory	Controls evaluated are not adequate, appropriate, or effective to provide reasonable assurance that risks are being managed and objectives should be met.

Internal control is defined as a process effected by senior management and staff, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting and compliance objectives. Whilst internal control provides reasonable (but not absolute) assurance of achieving organizational objectives, limitations may result from:

- suitability of objectives established as a precondition to internal control;
- reality that human judgment in decision making can be faulty and subject to bias;
- breakdowns can occur because of human failures such as simple errors;
- ability of management to override internal control;
- ability of management, other staff, and/or third parties to circumvent controls through collusion;
- external events beyond the organization's control.

Priority of Audit Recommendations

The audit recommendations in this report are categorized according to priority as a guide to management in addressing the issues raised. The following categories are used:

High: recommendations which address significant and/or pervasive deficiencies or control weaknesses, or areas where significant improvements can be made.

Medium: recommendations which address important deficiencies or control weaknesses, or areas where some improvements can be made.

Low: suggestions which represent best practice, or general opportunities for improvement.

ANNEX 2: MANAGEMENT ACTION PLAN

Ref.	Recommendation	Priority Rating	Accepted (Y/N)	Management Comments	Agreed Actions	Office/ Section Responsible	Target Date
1.	To increase transparency and mitigate risks, ANB should analyze the programme budget requirements in order to present a clear and fully costed budget proposal to the Council to ensure sufficient and stable funding for the USOAP CMA programme in the 2023 to 2025 regular programme budget.	High	Yes	While this is a high priority recommendation, it is hard to quantify all costs due to lack of information on the future of SSPIAs, analysis capacity of the programme and forecast of activities for the next three years. Human resources needs have been identified for traditional USOAP activities.	Decide the analysis structure within USOAP.\n\nIdentify human resources needs for the implementation of SSPIAs in the next triennium.\n\nDefine a three-year forecast of activities.\n\nPresent proposal to senior management for consideration of the next budget considering all staff costs and other expenses.	ANB/MO	31/1/22
2.	ANB should work together with HR to identify a suitable form of contractual agreement to engage those individuals for specific, short-term tasks, who have already been pre-assessed and are part of an established roster.	High	Yes	According to latest Administrative Instructions, DPOs CANNOT be used for goods/services offered by an individual, only from a company.\n\nMO has no written waiver from the Secretary General to bypass the rule.\n\nPossibility of not having payment approved for Designee services is at the forefront.	Short term (temporary mitigation): Submit a waiver request to Secretary General.\n\nIn consultation with Designees, identify those with established companies.\n\nLong term: In consultation with ADB and TCB/PRO, identify a clear policy for acquisition of services by individuals qualified by outcome that may be used in lieu of traditional time-based consultancy contracts	ANB/OSU\n\n\n\nADB/HR Procurement	31/12/21\n\n\n\n30/12/22

Ref.	Recommendation	Priority Rating	Accepted (Y/N)	Management Comments	Agreed Actions	Office/ Section Responsible	Target Date
					within the HR administrative processes.		
3.	Going forward, MO should establish relevant criteria and document a more formal training/qualification process to designate an individual as an audit/ICVM Team Leader or OJT provider.	Medium	Yes	The Team Leader (TL) OJT process had already been developed and included in the TL OJT Record and Evaluation Form.	Establish the criteria for becoming an audit/ICVM TL. Establish the criteria for becoming an OJT provider for TL and TM. Develop the guidelines for providing TM OJTs.	ANB/OAS	31/1/22
4.	MO should work closely with SPCP to identify any specific actions that can be taken to implement the ICAO Gender Equality Implementation Plan at the Section level and/or within the USOAP CMA programme to improve the gender balance.	Medium	Yes	The ICAO Gender Equality Programme Implementation Plan which is available on our intranet only covers years 2017 to 2020. No current plan is available. Based on the previous plan, MO reviewed the actions that have been taken and their applicability.	Request training to ensure Management comprehend the issues related to gender equality within ICAO. Encourage managers to discuss gender equality with their staff. Ensure that all official communications use gender-neutral languages. With a goal to increase the number of women participating in safety audit teams, establish a dashboard to identify gender participation and review status quarterly.	ANB/MO SPCP	30/06/2023
5.	MO should: i) Re-evaluate the calculation of the EI score in line with recommendations of the GEUSR to	High	Yes	EI review and scoring is already underway and has been accepted in the GEUSR. Discussion at USOAP-AG	EI Scores Maintain efforts to adopt the following metrics from the GEUSR recommendations, which, when	ANB/MO	31/12/21

Ref.	Recommendation	Priority Rating	Accepted (Y/N)	Management Comments	Agreed Actions	Office/ Section Responsible	Target Date
	maintain its relevance and to provide a more accurate reflection of the current status of aviation oversight in a State. Options could include combining it with other measures, and/or to report separate EI scores for the different elements of the level of safety oversight in a State. ii) Establish a policy on the maximum length of time between audits, and a maximum period for which a CAP will be considered relevant for validation, to ensure that the EI score for all States remains more up to date.			noted as well frequency of activities and are under development in ANB MO.	taken together, better represent a State's safety oversight capability: a) Overall EI; b) Priority PQ EI; and c) Implementation EI. Audit Frequency Develop USOAP CMA audit frequency process and tool. CAP Relevance Revise 9735 to implement, as appropriate, previous management decision to address CAP relevance over time.	ANB/MO ANB/MO	30/06/22 30/6/22
6.	MO, together with the regional offices, should review and reassess the current process for evaluating the initial acceptability of a CAP and any future CAP updates with a view to streamlining the process and thereby reducing the resources required for this work.	High	Yes	As long as ICAO is still required to assess the CAPs, necessary resources will have to be provided. By the nature of the task, CAP assessment is resource intensive to achieve its objective and States' expectation.	Revise 9735 with the relevant management decision on CAPs eligible for assessment of acceptability to reduce the demand for assessment of outdated CAPs and already accepted CAPs. Streamline the assessment process for initial acceptability and subsequent CAP updates. Clarify/clearly define the responsibilities of Headquarters and Regional Offices in terms of the initial acceptability of a CAP and the	ANB/MO ANB/OAS ANB/MO ROs	30/6/22 31/3/22 31/6/22

Ref.	Recommendation	Priority Rating	Accepted (Y/N)	Management Comments	Agreed Actions	Office/ Section Responsible	Target Date
					subsequent assessment of CAP updates.		
					Provide the required training to regional office staff in line with the latest CAP assessment process.	ANB/OAS	31/12/22
7.	MO, in consultation with the regional offices, should update the internal guidance on the assessment and monitoring of CAPs to clarify the roles and responsibilities of headquarters and regional offices, to identify any efficiencies in the current process, and to provide appropriate training to regional office staff.	Medium	Yes	It is a time consuming exercise to monitor all of the updates and supporting documentation submitted by States in the OLF and regional offices should be provided with the resources necessary to undertake this work on a continuous basis. Necessary resources should also be provided to MO in order to have States progress in CAP implementation timely validated and reflected in States' EI.	Update and streamline the internal guidance on the monitoring and assessment of States progress in CAPs implementation and clarify the roles and responsibilities of headquarters and regional offices. Provide the required training to regional office staff in monitoring States progress in CAP implementation and assessing when the State is ready for a validation activity.	ANB/OAS RO ANB/OAS	31/3/22 31/7/22
8.	MO should: i) Review the formulation of current KPIs to ensure that they are a meaningful measure of performance that can be tracked over time.	Medium	Yes	Reversal of PQ status at technical review. State cancellation of activities. State readiness measure by activity. CAP Assessment,	Identify areas for standardization and provide additional training where required. Measure cancellations and ensure that unsubstantiated cancellations are flagged.	MO	30/06/22

Ref.	Recommendation	Priority Rating	Accepted (Y/N)	Management Comments	Agreed Actions	Office/ Section Responsible	Target Date
	ii) Develop outcome based KPIs to measure the success and impact of the USOAP CMA programme.			SSCs, MIRs	Create a categorization of cancellation reasons. Information with respect to cancellations, the categorizations, the potential costs to States and such should be added to Doc 9735. Measure the State readiness for their activity. It is noted that this KPI is not a measure of MO's performance, but would be beneficial in communicating the context in which activities must be conducted. Several parameters could be measured such as: Did the State update their self-assessment; Were State personnel readily available during the activity (was there waiting time, frequent disruptions, lack of cooperation, avoidance, etc); Were records readily available when requested; Were CAPs updated to represent results; Any other factor that would hinder the completion of the activity.		