ICAO

SAFETY

REPORT

Universal Safety Oversight Audit Programme

Continuous Monitoring Approach Results

1 January 2016 to 31 December 2018

INTERNATIONAL CIVIL AVIATION ORGANIZATION

FOREWORD

The Universal Safety Oversight Audit Programme (USOAP) continues to be one of ICAO's priority programmes and certainly one of the most visible that ICAO has launched in the last two decades. The "Eight Critical Elements (CEs)", the building blocks upon which a State's safety oversight system is based, are now a common language in the aviation community and their "Effective Implementation (EI)" a common metric used when referring to States' safety oversight systems.

The Universal Safety Oversight Audit Programme completed its 500th activity in 2018, and is celebrating its 20th anniversary in 2019. The one constant over these 20 years has been the programme's commitment to evolution in order to achieve its objectives through ever more effective and efficient approaches. It has evolved from the initial, limited cycle of audits related to Annexes 1, 6 and 8 to the *Convention on International Civil Aviation,* in 1999, to the USOAP Continuous Monitoring Approach (CMA) of today, an information-driven, risk-based and result-oriented programme whose objectives include: monitoring States' safety oversight and aircraft accident and incident investigation capabilities using a web-based platform — the "online framework" (OLF); conducting audits, and validating States' progress on addressing identified deficiencies through various types of activities. Starting 2019, the USOAP CMA also initiated the State Safety Programme Implementation Assessment (SSPIA) cycle.

Moving forward, this evolution of the programme will be driven by three main streams of work: i) implementation of the Group of Experts for a USOAP CMA Structured Review (GEUSR) recommendations; ii) advice by the Ad Hoc USOAP CMA Advisory Group on efficiency enhancements of the programme; and iii) organizational improvements. The GEUSR, recommended by the 39th Session of the ICAO Assembly, is a group of State nominated experts who undertook an independent and structured review of current USOAP methodology, processes and tools. The Ad Hoc USOAP CMA Advisory Group, stemming from a recommendation of the Thirteenth Air Navigation Conference (AN-Conf/13), has been recently established to address duplication of efforts and find synergies among other auditing programmes, as well as to enhance the efficiency of the USOAP CMA while maintaining safeguards to guarantee the independence, universality, standardization and global acceptance in the implementation of the programme.

Through the evolution of the USOAP CMA, ICAO aims to maintain the programme's status as a global aviation monitoring system of ICAO Member States' capabilities for safety oversight, aircraft accident and incident investigation, and their maturity in implementing SSPs. Within this evolution, the USOAP has also been adapted to audit regional safety oversight organizations (RSOOs) that perform delegated responsibilities that are monitored through the USOAP CMA on behalf of a State or group of States. The transformations will strengthen the programme and progress it in line with the evolving safety strategy of ICAO. The evolved USOAP CMA is also expected to enhance the information it conveys to decision-making bodies. Furthermore, the organizational improvements to be implemented throughout this transition phase will result in a more efficient programme with enhanced technology, structure and management systems.

This report, which presents information on the activities and results of the USOAP CMA from January 2016 to December 2018, not only provides statistical data, but also highlights a number of challenges which States continue to face. Such challenges will call for increased efforts at national, regional and global levels.

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Chapter 1

INTRODUCTION

1.1 SUMMARY

1.1.1 This report provides results and analysis of data from activities conducted within the Universal Safety Oversight Audit Programme Continuous Monitoring Approach (USOAP CMA). The data and safety information collected from Member States and other stakeholders through the USOAP CMA allow ICAO to use a risk-based approach for monitoring and assessing States' safety oversight capabilities through various on-site and off-site monitoring activities.

1.1.2 Reporting of USOAP CMA results also supports the objectives of the Global Aviation Safety Plan (GASP) 2017-2019, particularly implementation of an effective safety oversight system (near-term objective) and the progress towards full implementation of the State safety programme (SSP) (mid-term objective). The availability of USOAP CMA results in a transparent and relevant manner allows States to focus on areas of their safety oversight systems that need improvement.

1.1.3 This report includes information and results from USOAP CMA activities conducted over the three-year period starting on 1 January 2016 until 31 December 2018.

1.2 BACKGROUND

1.2.1 The 37th session of the Assembly (September – October 2010) adopted Resolution A37-5 regarding the evolution of USOAP to the CMA as a mechanism for ICAO to monitor the safety oversight capabilities of Member States on a continuous basis. The CMA was officially launched in January 2013, after a two-year transition in 2011-2012. Under USOAP CMA, ICAO conducts various activities, including mainly audits, ICVMs and off-site validation activities.

1.2.2 A USOAP CMA audit is an on-site activity during which ICAO determines a State's capability for safety oversight by assessing the State's effective implementation of the critical elements (CEs) of a safety oversight system (see Chapter 2, 2.1).

1.2.3 An ICVM is an on-site activity during which an ICAO team of subject matter experts collects and assesses evidence provided by the State demonstrating that the State has implemented corrective actions (or mitigating measures for significant safety concerns (SSCs)) to address previously identified findings. ICAO validates the collected evidence and information.

1.2.4 During an off-site validation activity, an ICAO team of subject matter experts assesses corrective actions implemented by a State to address certain findings without an on-site visit to the State. ICAO validates submitted supporting evidence at ICAO Headquarters. This type of activity is limited to eligible protocol questions (PQs) that do not require on-site verification, i.e. mainly those related o the establishment of legislation, regulations, policies and procedures.

Note.— Further details about USOAP CMA activities are described in Doc 9735 — Universal Safety Oversight Audit Programme Continuous Monitoring Manual.

1.2.5 This report uses data from the USOAP CMA online framework (http://icao.int/usoap/). The online framework is the main tool for collecting, continuous monitoring and reporting of USOAP CMA data. It provides ICAO, Member States and other authorized users with a suite of web-integrated applications that allow access to safety-related information and documentation received during USOAP CMA activities from Member States and international organizations that have an agreement with ICAO for sharing of safety information under the USOAP CMA. This report also uses various analyses of USOAP CMA data generated by ICAO's Integrated Safety Trend Analysis and Reporting System (iSTARS/SPACE at http://portal.icao.int – group name SPACE) platform.

Chapter 2

THE ICAO USOAP CMA

2.1 CRITICAL ELEMENTS

2.1.1 Critical elements (CEs) are essentially the defence tools of a State's safety oversight system required for the effective implementation of safety-related standards, policy and associated procedures. Each Member State should address all CEs in its effort to establish and implement an effective safety oversight system that reflects the shared responsibility of the State and the aviation community. CEs of a safety oversight system cover the whole spectrum of civil aviation activities, including personnel licensing, aircraft operations, airworthiness of aircraft, aircraft accident and incident investigation, air navigation services and aerodromes, as applicable. The level of effective implementation of the CEs is an indication of a State's capability for safety oversight.

2.1.2 The CEs of a State's safety oversight system, as outlined in Annex 19 — *Safety Management, Appendix 1, are as follows:*

CE-1 Primary aviation legislation

1.1 The State shall promulgate a comprehensive and effective aviation law, consistent with the size and complexity of the State's aviation activity and with the requirements contained in the Convention on International Civil Aviation, that enables the State to regulate civil aviation and enforce regulations through the relevant authorities or agencies established for that purpose.

1.2 The aviation law shall provide personnel performing safety oversight functions access to the aircraft, operations, facilities, personnel and associated records, as applicable, of service providers.

CE-2 Specific operating regulations

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

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

CE-3 State system and functions

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

3.2 **Recommendation.—** *The State should take necessary measures, such as remuneration and conditions of service, to ensure that qualified personnel performing safety oversight functions are recruited and retained.*

3.3 The State shall ensure that personnel performing safety oversight functions are provided with guidance that addresses ethics, personal conduct and the avoidance of actual or perceived conflicts of interest in the performance of official duties.

3.4 **Recommendation.—** *The State should use a methodology to determine its staffing requirements for personnel performing safety oversight functions, taking into account the size and complexity of the aviation activities in that State.*

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

CE-4 Qualified technical personnel

4.1 The State shall establish minimum qualification requirements for the technical personnel performing safety oversight functions and provide for appropriate initial and recurrent training to maintain and enhance their competence at the desired level.

4.2 The State shall implement a system for the maintenance of training records.

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

5.1 The State shall provide appropriate facilities, comprehensive and up-to-date technical guidance material and procedures, safety-critical information, tools and equipment, and transportation means, as applicable, to the technical personnel to enable them to perform their safety oversight functions effectively and in accordance with established procedures in a standardized manner.

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

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

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

CE-7 Surveillance obligations

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

CE-8 Resolution of safety issues

8.1 The State shall use a documented process to take appropriate corrective actions, up to and including enforcement measures, to resolve identified safety issues.

8.2 The State shall ensure that identified safety issues are resolved in a timely manner through a system which monitors and records progress, including actions taken by service providers in resolving such issues.

2.2 AUDIT AREAS

The following eight audit areas have been identified in the USOAP:

1) primary aviation legislation and specific operating regulations;
2) civil aviation organization (ORG);
3) personnel licensing and training (PEL);
4) aircraft operations (OPS);
5) airworthiness of aircraft (AIR);
6) aircraft accident and incident investigation (AIG);
7) air navigation services (ANS); and
8) aerodromes and ground aids (AGA).

2.3 USOAP CMA PROTOCOL QUESTIONS

2.3.1 Protocol questions (PQs) are the primary tool for assessing the level of effective implementation of a State's safety oversight system. They are based on the Chicago Convention, safety-related Standards and Recommended Practices (SARPs) established in the Annexes to the Convention, Procedures for Air Navigation Services (PANS), ICAO documents and other guidance material. Each PQ contributes to assessing the effective implementation of one of the eight CEs in one of the eight audit areas.

2.3.2 The use of standardized PQs ensures transparency, quality, consistency, reliability and fairness in the conduct and implementation of USOAP CMA activities.

2.3.3 Any change in the status of a PQ for a State will lead to an update of the effective implementation (EI) of the EI.

2.3.4 During a USOAP CMA activity, if there is insufficient or no documented evidence to prove that a PQ is satisfactory, a shortcoming is identified and documented through the issuance of a PQ finding. Generating a finding changes the status of the associated PQ to "not satisfactory" and decreases the State's EI. Each PQ finding must be based on one PQ.

2.3.5 In order for ICAO to close a PQ finding, the State must address the associated PQ by resolving all the shortcomings detailed in the finding.

Figures 2-1 and 2-2 below show the number of PQs by CE and by proportion for each CE. Figure 2-3 presents the number of PQs by audit area.

FIGURE 2-1. Number of USOAP CMA PQs by CE

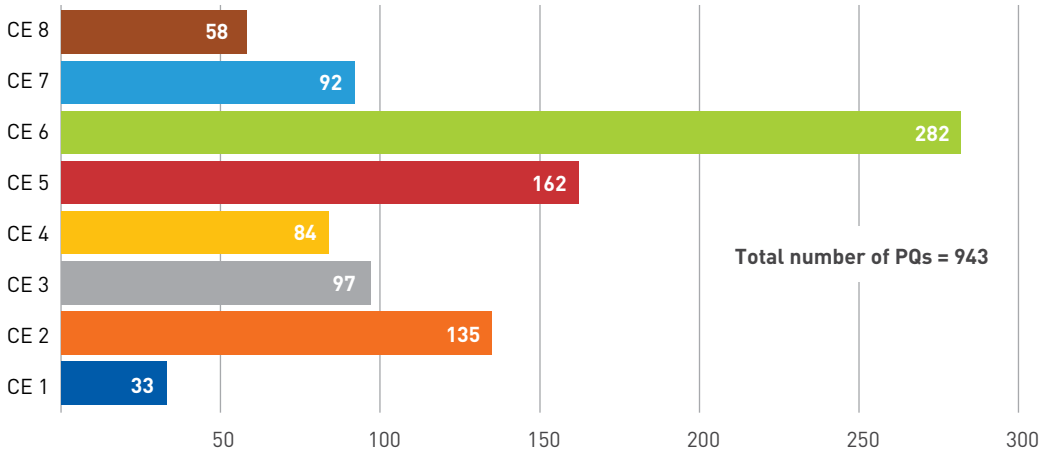


FIGURE 2-2. Proportion of USOAP CMA PQs by CE

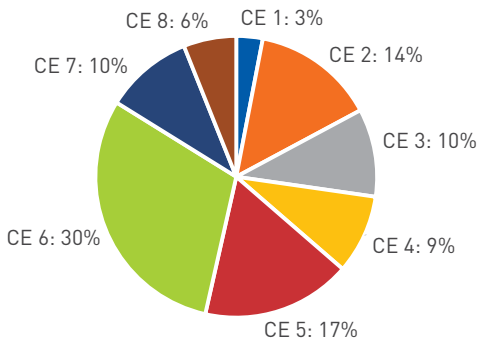
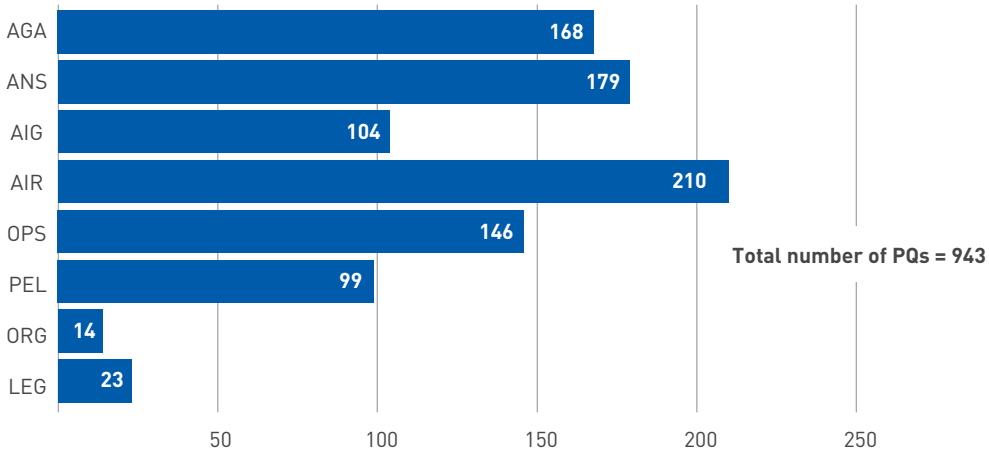


FIGURE 2-3. Number of USOAP CMA PQs by audit area



2.4 EFFECTIVE IMPLEMENTATION

2.4.1 Effective implementation (EI) is a measure of the State's safety oversight capability. A higher EI indicates a higher maturity of the State's safety oversight system.

2.4.2 The EI is calculated for any group of applicable PQs based on the following formulae:

$$EI\ (\%) = \frac{\text{number of satisfactory PQs}}{\text{total number of applicable PQs}} \times 100$$

The EI can thus be calculated for each CE, each audit area and as an overall value.

In addition to the EI, a lack of effective implementation (LEI) score is also calculated for certain analysis. The LEI is simply calculated as:

$$LEI\ (\%) = 100 - EI\ (\%)$$

2.5 COMPLIANCE CHECKLISTS/ ELECTRONIC FILING OF DIFFERENCES (EFOD) SYSTEM

2.5.1 States are required by the USOAP CMA Memorandum of Understanding to complete and maintain up to date the compliance checklists (CCs) for 18 of the 19 Annexes to the Chicago Convention (i.e. all Annexes except Annex 17). These contain information regarding the implementation of the specific SARPs of the corresponding Annexes to the Chicago Convention. The completion of the CCs by Member States provides information regarding their level of compliance to the ICAO SARPs as well as any deviation categorized in one of the following three groups:

a) More exacting or exceeds;
b) Difference in character or Other means of compliance; and
c) Less protective or partially implemented or not implemented.

2.5.2 States must provide this information through the CC/EFOD module of the CMA online framework (OLF). States can use the "Validate" function of the module to convert their entries into filed differences, as per the requirements of Article 38 of the Chicago Convention. Details of each State's CC reporting could be viewed in the report produced from the CC/EFOD Reports module of the USOAP CMA OLF.

Chapter 3

USOAP CMA RESULTS

3.1 GLOBAL EI AND GEOGRAPHIC DISTRIBUTION OF ACTIVITIES

Figures 3-1 to 3-3 below apply to the reporting period 1 January 2016 to 31 December 2018.

USOAP CMA on-site activities — audits and ICVMs — are scheduled on a yearly basis taking into consideration safety risk factors as well as the need for an appropriate geographical distribution. The yearly schedule is published by ICAO via Electronic Bulletin. The scheduling of additional activities (mainly additional ICVMs and off-site validation activities) depends on additional conditions and factors, including specific requests which may be made by States and agreed upon by ICAO, provided that sufficient progress has been achieved and documented by the State on the OLF, and that the necessary resources are available to perform the activities. In practice, a number of States in each ICAO region have received more than one activity in this reporting period, as shown in Figure 3-3.

As result of the USOAP CMA activities conducted during the reporting period (including CMA audits, ICVMS and off-site validation activities), the global average EI went up from 63.91 per cent to 67.68 per cent.

FIGURE 3-1. Number of States in each ICAO region, number of USOAP CMA activities conducted in each region and number of States that received one or more activities for the reporting period

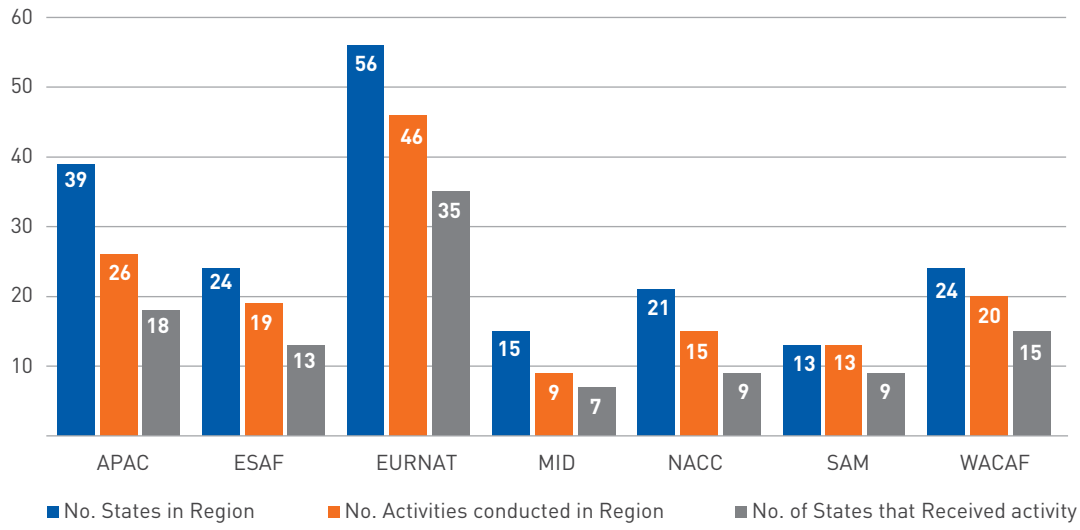


FIGURE 3-2. Number of audits, ICVMs and off-site validation activities conducted in each ICAO region for the reporting period

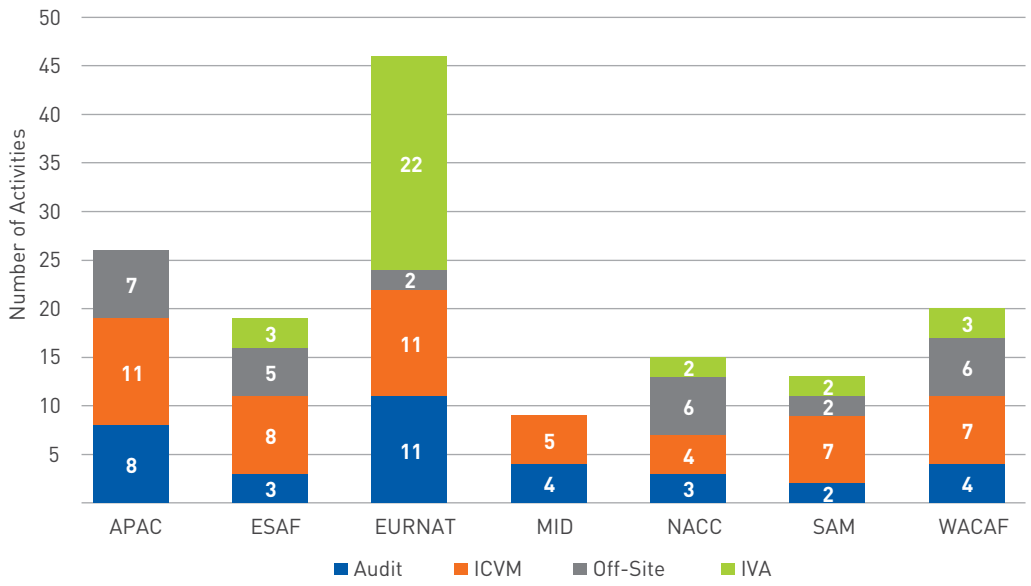
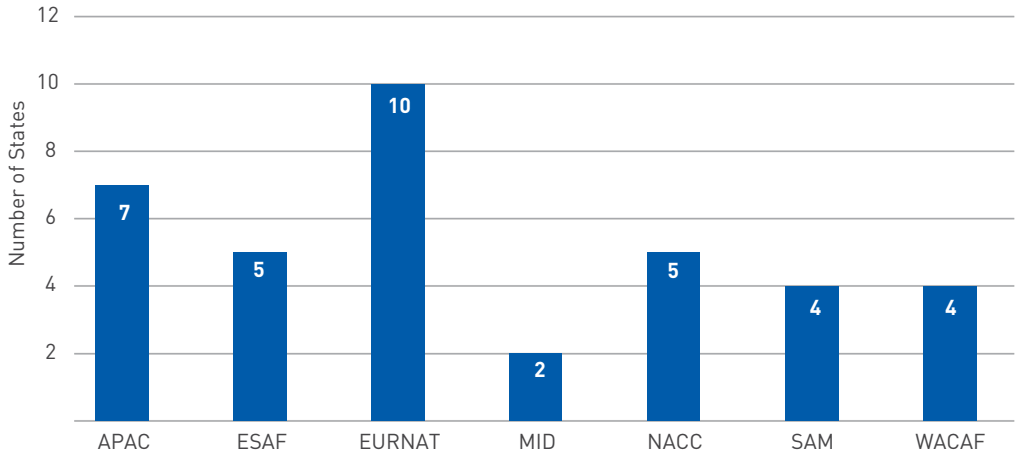
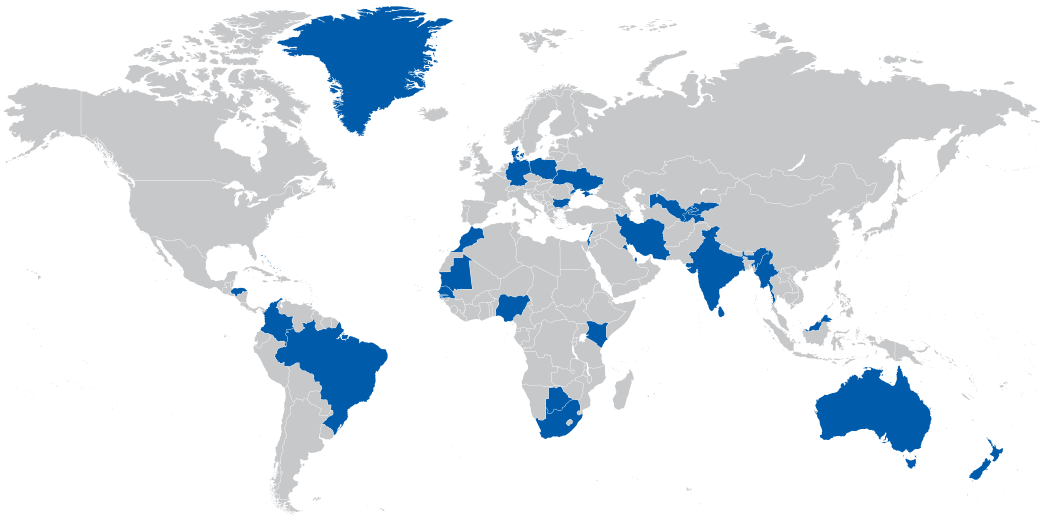


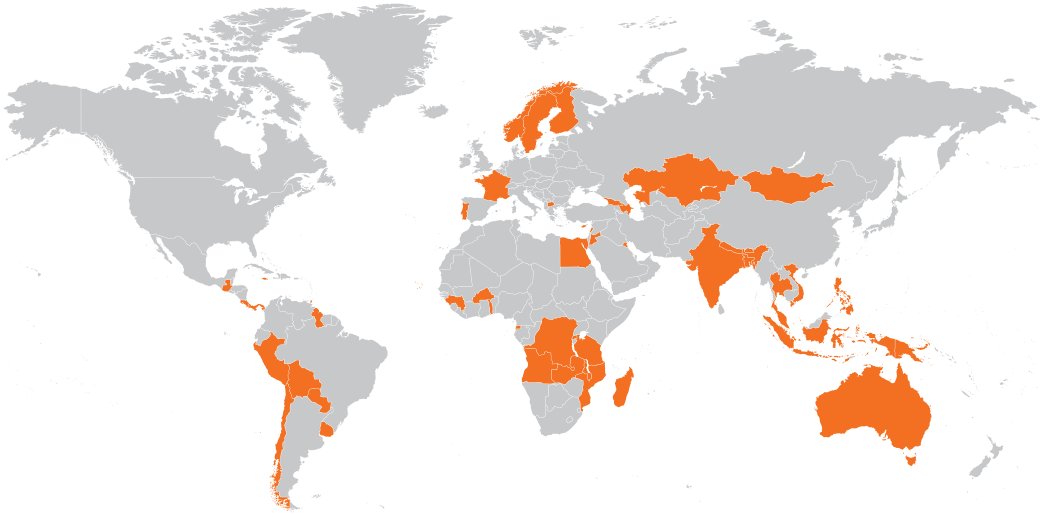
FIGURE 3-3. Number of States in each ICAO region that received more than one USOAP CMA activity for the reporting period



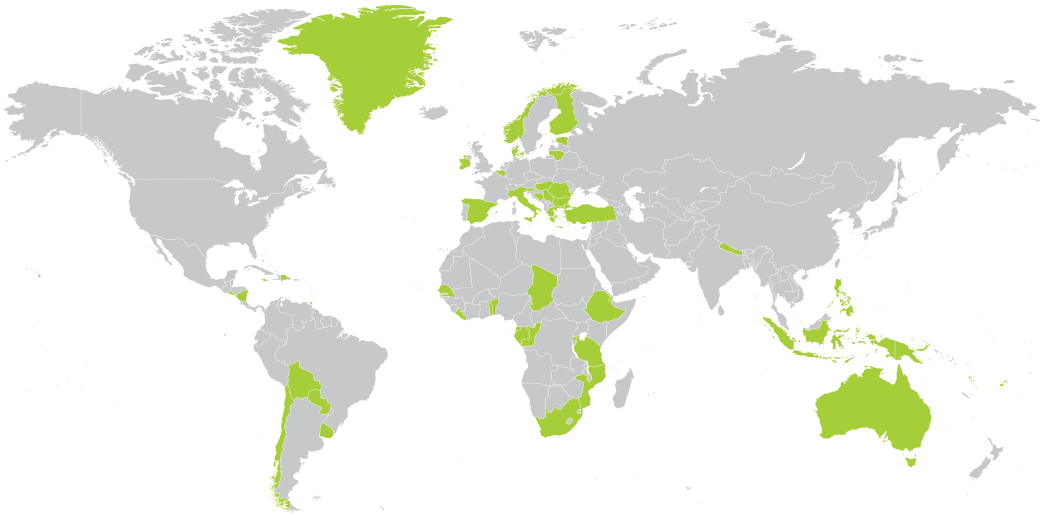
AUDITS — Conducted USOAP CMA Activities from 1 January 2016 to 31 December 2018



ICAO COORDINATED VALIDATION MISSIONS (ICVMS) — Conducted USOAP CMA Activities from 1 January 2016 to 31 December 2018



OFF-SITE VALIDATION ACTIVITIES — Conducted USOAP CMA Activities from 1 January 2016 to 31 December 2018



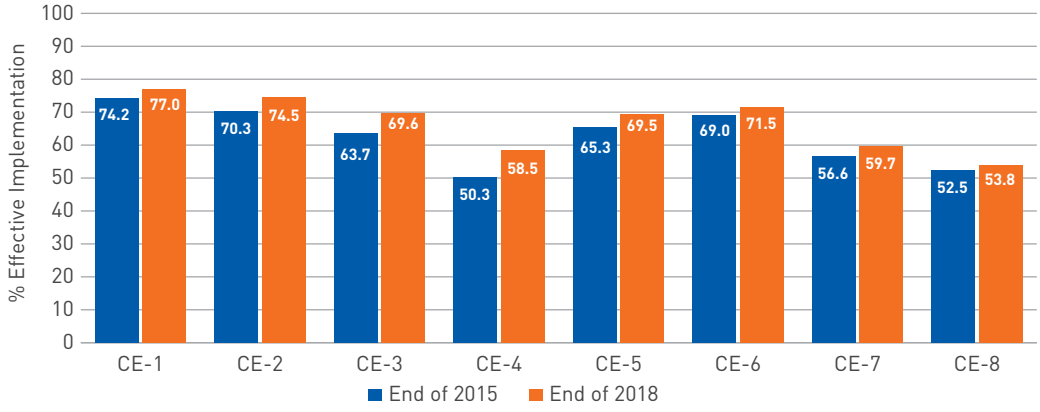
3.2 GLOBAL RESULTS BY CRITICAL ELEMENT

3.2.1 As of end 2018, CE-4 remains the CE with the lowest EI rate at global level, and CE-1 remains the CE with the highest EI rate. In the three-year reporting period, all CEs from CE-1 to CE-8 have seen an increase of their EI.

3.2.2 Despite the fact that there was an increase of EI in all CEs, CE-4, CE-7 and CE-8 continue to be well below desirable global levels. One factor contributing to this low EI remains the inability of some States to recruit, train and retain qualified and experienced technical staff. Finally, as the level of aviation activity continues to increase for most States, some CAAs were not being sufficiently staffed to effectively perform all necessary additional certification, surveillance and enforcement activities.

3.2.3 The CEs which have had the highest increase in the three-3 year reporting period are CE-4 and CE-5. During this period, ICAO has been able to validate (during on-site as well as off-site activities) the establishment of training-related documentation, such as training policy and programmes, as well as the establishment of procedures by States. These are typically the "low hanging fruits" which — unlike the amendment of regulations or legislation — do not normally require lengthy drafting, consultation and promulgation processes.

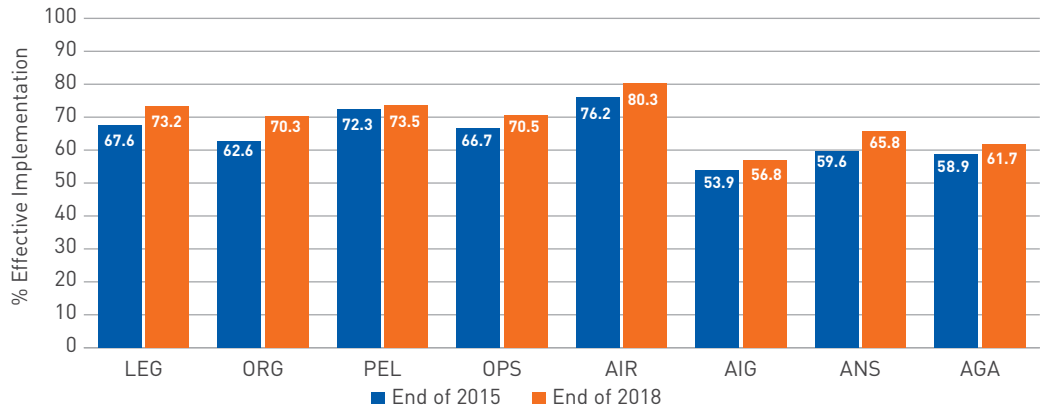
EI by CE



3.3 GLOBAL RESULTS BY AUDIT AREA

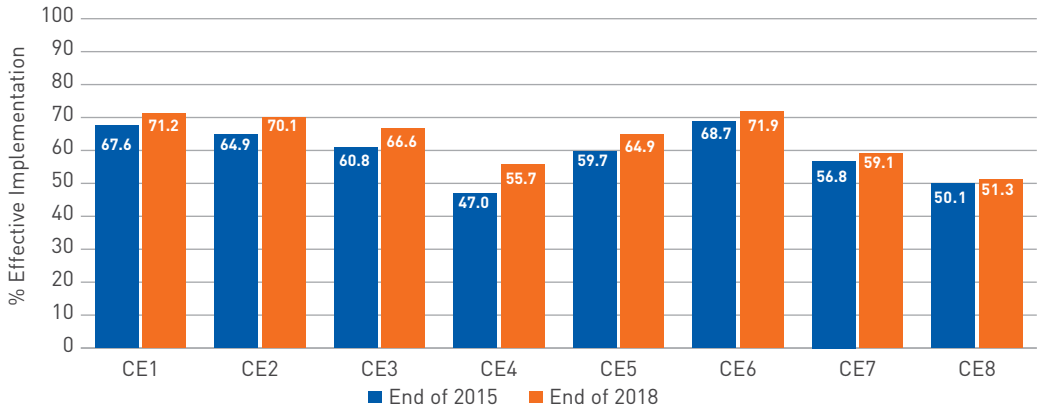
As of end 2018, at global level, the three audit areas with the lowest EI are AIG, ANS and AGA, partly due to the fact that ICAO only started to perform USOAP audit activities in these areas in 2005 (as opposed to 1999 for the PEL, OPS and AIR areas). AIR remains the area with the highest EI rate and AIG the one with the lowest EI rate. Indeed, USOAP CMA activities have identified that many States still lack adequate legislation, regulations and procedures related to investigations, and also sufficient human and financial resources to discharge their obligations called for in Annex 13 to the Chicago Convention. In the three-year reporting period, within the six technical audit areas (PEL, OPS, AIR, AIG, ANS and AGA), all areas saw an increase of the EI at global level. The highest increase of EI was in the ORG area, followed by LEG and ANS.

EI by Audit Area

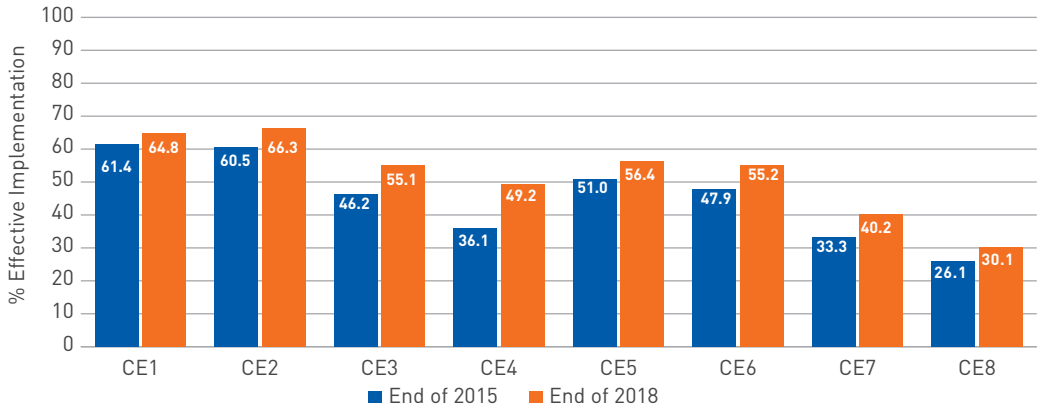


3.4 REGIONAL RESULTS BY CRITICAL ELEMENT

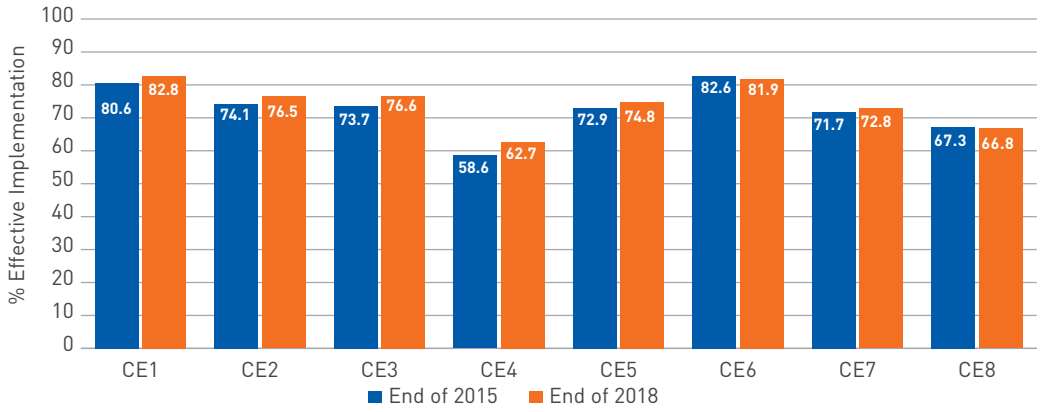
APAC-CE



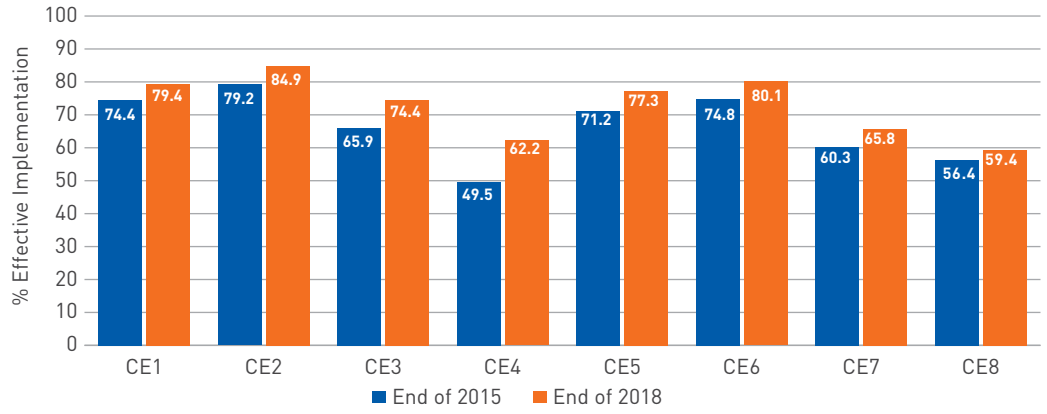
ESAF-CE



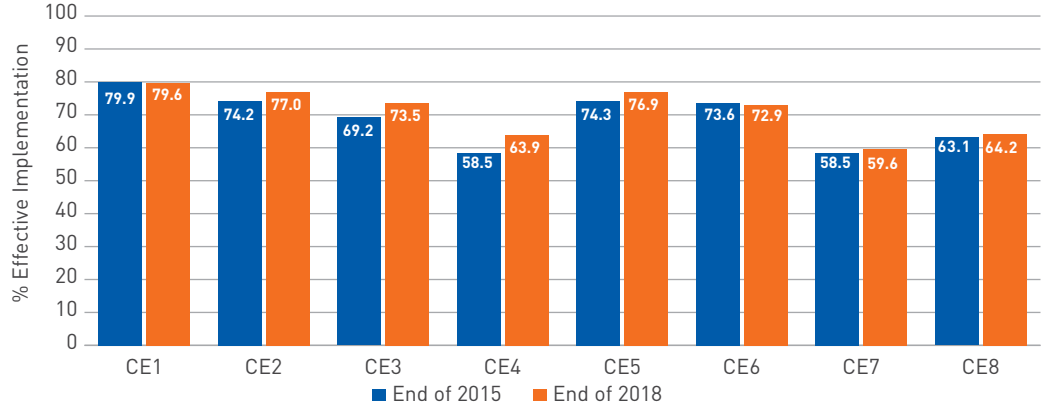
EUR/NAT-CE



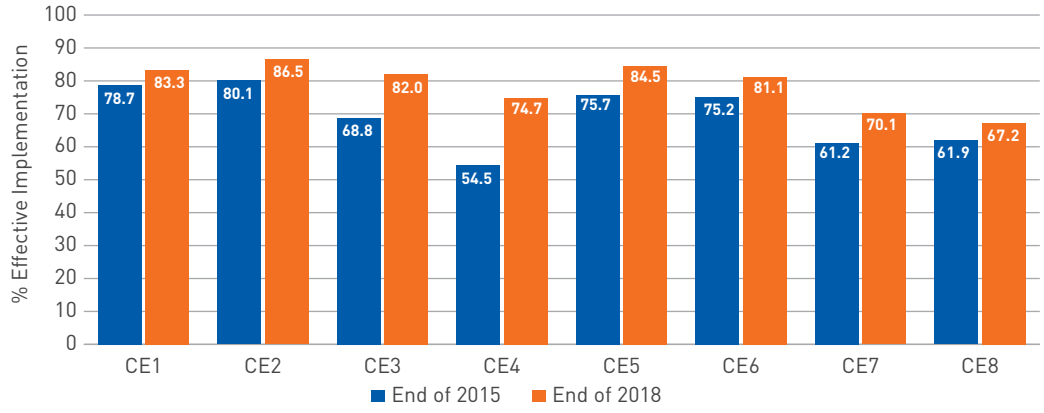
MID-CE



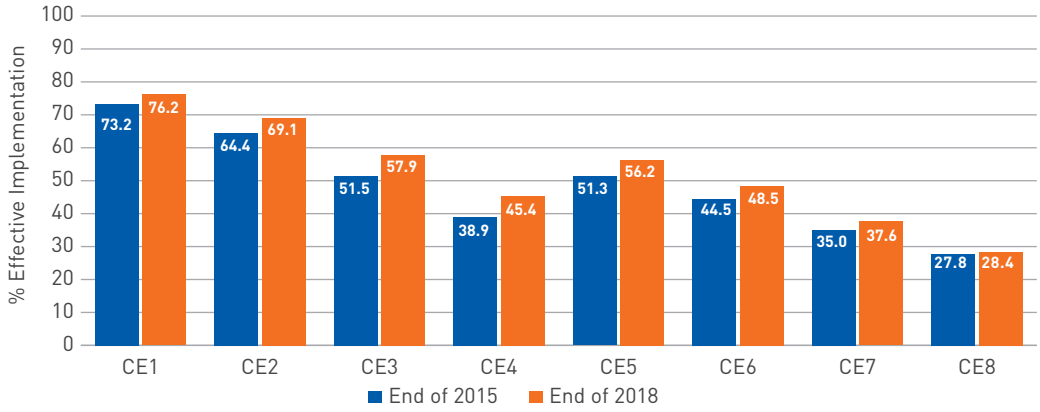
NACC-CE



SAM-CE

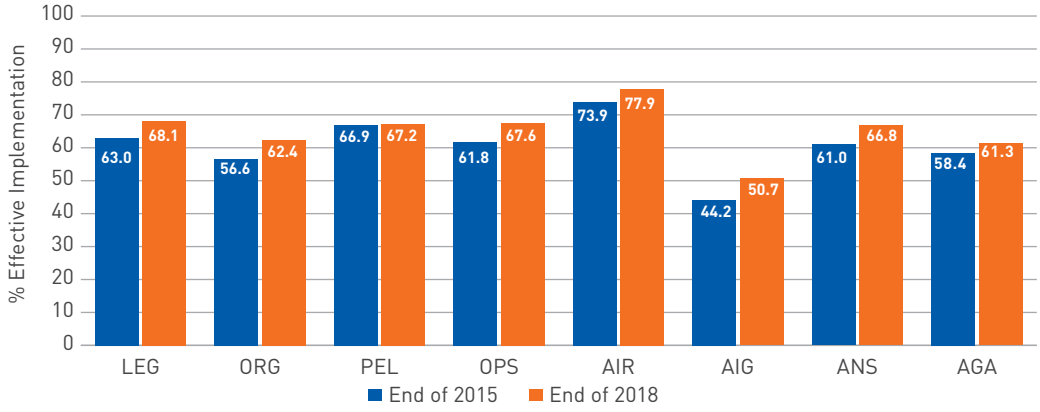


WACAF-CE

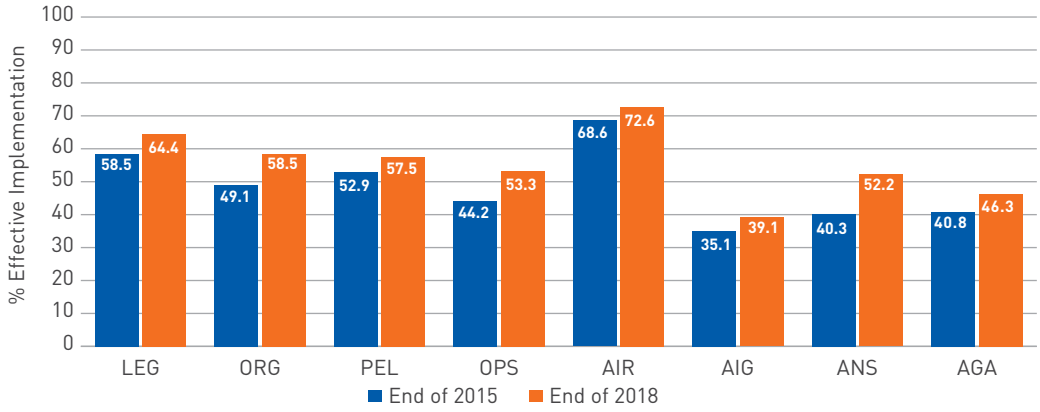


3.5 REGIONAL RESULTS BY AUDIT AREA

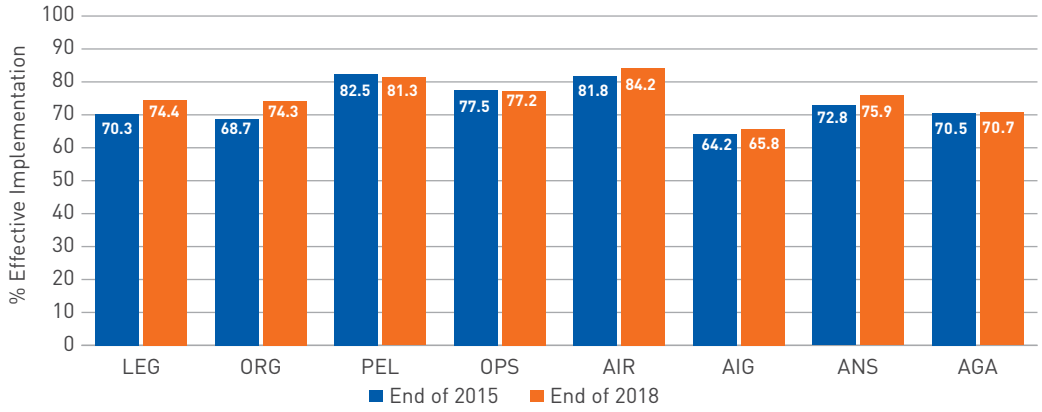
APAC-Audit Area



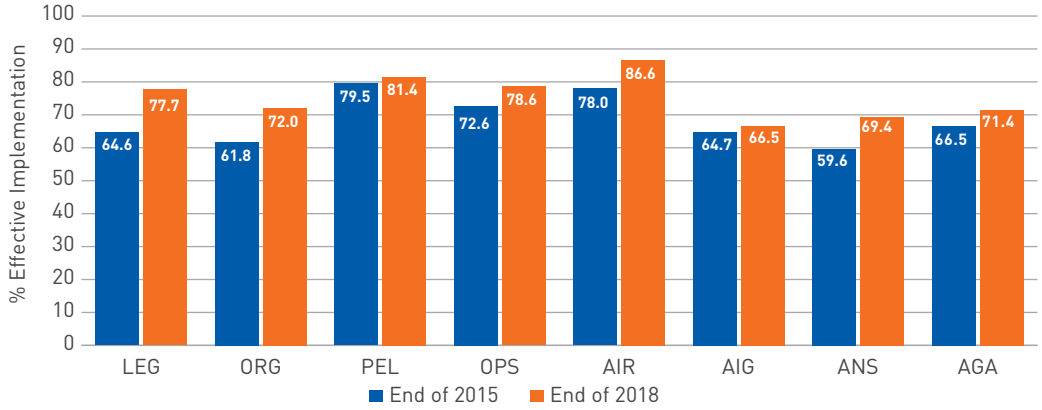
ESAF-Audit Area



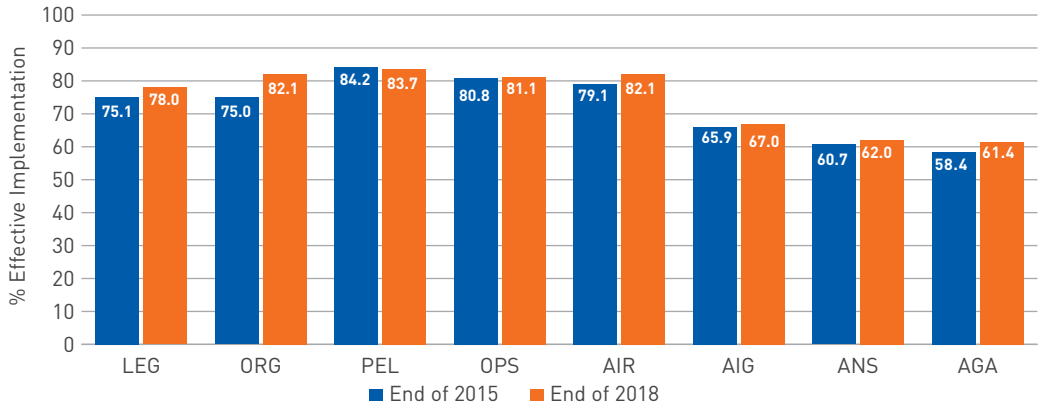
EUR/NAT-Audit Area



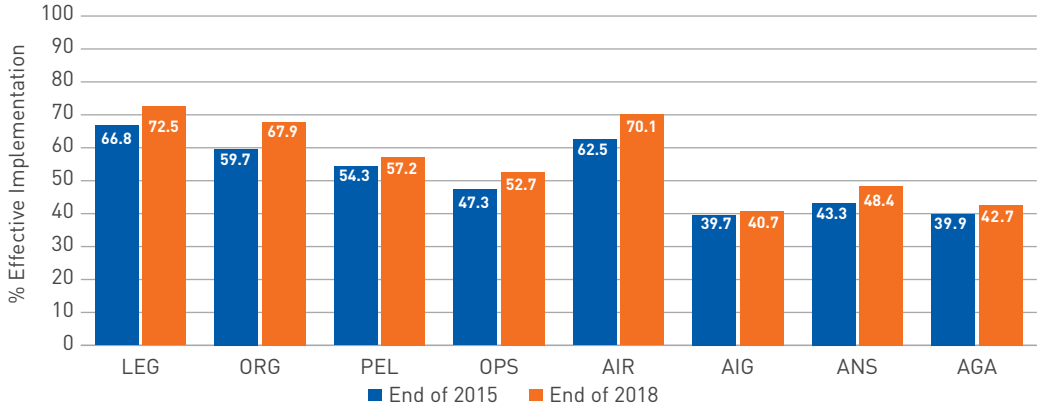
MID-Audit Area



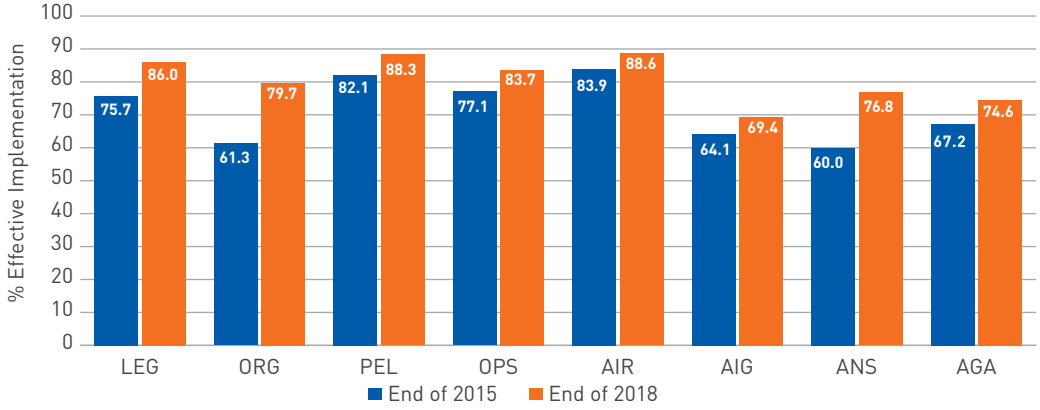
NACC-Audit Area



WACAF-Audit Area



SAM-Audit Area



Chapter 4

HIGHLIGHTS OF ISSUES IDENTIFIED IN THE EIGHT AUDIT AREAS

This chapter outlines a number of aspects related to safety oversight and accident/incident investigation, for which USOAP CMA activities have identified that most States continue to face challenges. Based on the information collected through USOAP CMA activities, this chapter does not however intend to present in a detailed or exhaustive manner all the main deficiencies identified through the USOAP CMA. The information contained therein does not address operational safety issues in the various areas, but rather issues related to the State's safety oversight systems and the State's systems for the independent investigation of aircraft accident and serious incidents and for occurrence reporting and analysis.

In addition to the highlights of issues identified in the eight audit areas, Appendix B to this report presents Effective Implementation (EI) rates for each subgroup in the eight audit areas.

4.1 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE LEG AREA

4.1.1 Developing and maintaining a comprehensive and up-to-date set of regulations

4.1.1.1 With a 20 per cent improvement in comparison with the last triennium, more than 50 per cent of the States continue to face challenges in establishing comprehensive procedure to amend in a timely manner their civil aviation regulations or if necessary, their primary aviation legislation, to bring them into full accord with applicable provisions contained in the Annexes to the Chicago Convention. The findings observed include procedures lacking an acceptable level of detail and customization regarding the processing of ICAO State Letters, coordination with all relevant entities, including technical and legal experts, within or outside of the State's CAA, or realistic but effective timelines for each step of the process. Some procedures missed a comprehensive set of steps starting from the identification of the need for amendments of the regulatory framework of a State to the actual promulgation and publication of amended or new legal requirements.

4.1.1.2 The absence of comprehensive and up-to-date States' legal frameworks consistent with ICAO safety-related requirements results not only from deficiencies in the procedures but also from limited qualified human resources in States for the rule-making process. Consequently, the legal basis for States to perform their safety oversight functions and duties is sometimes incomplete or not in conformance with the latest ICAO SARPs. States which have adapted or adopted regulations from other sources face similar challenges, with 50 per cent of these States not having an established and comprehensive process which ensures that their regulatory scheme is up to date following the amendments of Annexes to the Chicago Convention.

4.1.2 Transferring of certain safety oversight functions and duties

4.1.2.1 Almost 60 per cent of the States with air operators using foreign registered aircraft have entered into agreements under Article 83 *bis* for the transfer of functions and duties between the State of Registry and the State of the Operator that do not meet minimum requirements, have not modified their primary aviation legislation to provide for the transfer of relevant functions and duties, or the primary aviation legislation and/or related operating regulations do not provide for the recognition of certificates of airworthiness, radio licences and crew licences issued or rendered valid by the State of the Operator in lieu of the State of Registry. The absence of an adequate legal framework for the transfer of functions and duties under Article 83 *bis* results in ambiguous safety oversight responsibilities between the State of Operator and the State of Registry, increasing the safety risks associated with the operation of these aircraft.

4.1.3 Identifying differences with SARPs, notifying them to ICAO and publishing significant differences in the Aeronautical Information Publication (AIP)

4.1.3.1 More than 50 per cent of the States have not yet established an effective system for the identification and notification to ICAO of the differences between the SARPs and their national regulations and practices, as required by Article 38 of the Chicago Convention. This represents a 20 per cent improvement in comparison with the last triennium. However, more than 80 per cent of the States continue to have difficulties identifying and publishing their significant differences in their AIP, as required by Annex 15.

4.1.3.2 The identification of differences requires sufficient understanding of the ICAO provisions involved, which may be limited by the availability, qualification and training of the State's personnel, by the complexity or formulation of the ICAO provisions and by the difficulty associated with the assessment of the level of compliance of national regulations and practices with SARPs. The identification of

significant differences implies a more elaborated evaluation of the States' national regulations and practices vis-à-vis ICAO provisions, particularly those concerning aircraft operations and the provision of facilities and services. Procedures established by certain States for the notification of differences often do not contain the necessary coordination with all relevant entities, including technical and legal experts, within or outside the State's CAA. These procedures may be realistic but lack effective timelines for each step of the process. In other States, procedures are robust, but implementation is not undertaken due to either a lack of detail and clarity on the steps to be undertaken or a lack of qualified human resources available.

4.1.4 Establishing and implementing policies and procedures for granting exemptions

4.1.4.1 With an improvement of 10 per cent in comparison with the last triennium, more than 40 per cent of the States face challenges in the granting of exemptions where full compliance with national regulations is not feasible. In those instances, exemptions may be granted by the State supported by appropriate, robust and documented safety risk assessments or aeronautical studies and imposition of limitations, conditions or mitigation measures, as appropriate. Certain States have not yet included the legal basis for granting exemptions in the primary aviation legislation, and regulatory requirements are not comprehensive or the formal policy and/or associated procedures are not detailed enough or fully implemented. In other States, non-compliances with established requirements are not documented or are not duly processed through a risk assessment mechanism.

4.1.5 Establishing and implementing enforcement policies and procedures

4.1.5.1 In comparison with the previous report, a slight improvement is noted in the establishment of an effective framework, including legislation, regulations and procedures, to enable an effective enforcement of the applicable primary aviation legislation and specific operating regulations. Within the legal component of this framework, clear enforcement powers shall be conferred to the aviation authority, including effective penalties to serve as a deterrent. Related policies and procedures are expected to facilitate cooperation of all stakeholders within the CAA, including the legal department and the various inspectorates, and provide for appropriate, consistent and commensurate responses to non-compliances or violations identified. Implementation of established enforcement procedures is particularly relevant in the areas where the State is involved in the provision of services or where conflict of interest may exist or be perceived, such as air navigation services (ANS) and aerodromes and ground aids (AGA).

4.2 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE ORG AREA

4.2.1 Defining functions and responsibilities of authorities related to safety oversight or aircraft accident and incident investigation

4.2.1.1 Almost 40 per cent of the States have not clearly defined the functions and responsibilities related to safety oversight and aircraft accident and incident investigation, aiming at avoiding overlaps and at establishing proper coordination mechanisms between the authorities involved, when applicable. Certain States face challenges in defining an appropriate organizational structure of the civil aviation system that covers all the requirements and relevant technical areas outlined in relevant Annexes to the Chicago Convention and associated guidance material, keeping in view the size and complexity of their aviation activities.

4.2.2 Recruiting and retaining sufficient qualified technical staff for the State authorities

4.2.2.1 Notwithstanding a 10 per cent improvement, almost 65 per cent of the States still lack proper mechanisms to ensure that their civil aviation and aircraft accident investigation authorities recruit and retain sufficient qualified technical personnel. Certain States have difficulties determining their staffing needs for personnel performing safety oversight (encompassing all the technical disciplines) or aircraft accident investigation functions, taking into account the size and complexity of aviation activities in the State. In other States, the employment conditions are not sufficiently competitive vis-à-vis the civil aviation industry in the State. Furthermore, once experts receive training and accumulate experience, they leave their authority for better remunerated positions in the industry or in other States or organizations. The absence of qualified inspectors continues to be the main obstacle to implement an effective State safety oversight system and can contribute to the identification of Significant Safety Concerns (SSC).

4.3 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE PEL AREA

4.3.1 Approving training programmes related to the first issuance of licences and ratings

4.3.1.1 Despite the 5 per cent increase in comparison to the previous report, more than 50 per cent of the States have not implemented an effective process to approve training programmes related to the first issuance of licences and ratings. In most of the States, the system for approval is not fully developed and when tools for approval are available, the qualifications and training of the inspectors may be insufficient for performing the review and approval in an effective manner. Often implementation is not comprehensive and does not include, as applicable, domestic and foreign programmes, for pilots, air traffic controllers and aircraft maintenance engineers. Furthermore, amendments to training programmes are most of the time not approved by the authority.

4.3.2 Ensuring supervision and control of flight and practical test delivery by the designated flight and practical examiners

4.3.2.1 Over 50 per cent of the States have not implemented an effective system for the supervision and control of flight and practical test delivery in order to ensure consistency and reliability of testing by the designated flight and practical examiners related to flight crew, air traffic controller and aircraft maintenance engineer licences. Many States have not taken into account all aspects necessary to appropriately implement this requirement, including the supervision of designated examiners, an adequate level and frequency of surveillance activities, and the availability of procedures and guidance material for inspectors, on the supervision and control of flight and practical test examiners. Also not taken into account are aspects related to the development of procedures and checklists for the observation of examinations and for the assessment of the competency of examiners during the conduct of examinations and checks.

4.3.3 Implementing a surveillance programme of approved training organizations (ATOs)

4.3.3.1 With an increase of 10 per cent as compared to the previous report, more than 40 per cent of the States have not implemented an effective programme for the surveillance of the ATOs for pilots, air traffic controllers and aircraft maintenance engineers. This applies not only to domestic ATOs, but also to foreign ATOs which provide training to the staff of some of the service providers in the State. Many States have not ensured consistency in their methods of surveillance nor appropriately determined the frequency of inspections. In addition, random inspections are often not included in the surveillance programme. Many States have not developed and maintained an effective system to keep track of their surveillance activities in relation to ATOs.

4.3.4 Performing surveillance activities in relation to air traffic controllers (ATCO)

4.3.4.1 With respect to surveillance activities on air traffic controllers, although there is a 20 per cent increase in comparison to the previous report, about 50 per cent of the States have not established and implemented an effective system for the surveillance of air traffic controllers to ensure that they continue to comply with the conditions of their privileges while performing their functions. Deficiencies have been found in such areas as the development and implementation of surveillance programmes and plans, the development of inspector procedures and guidance, the conduct of random and periodic inspections and the analysis of surveillance data to determine areas of concern, such as non-compliance with the regulations and unsafe practices.

4.3.5 Supervising and controlling designated medical examiners (DMEs)

4.3.5.1 About 50 per cent of the States have not implemented a system for the supervision and control of DMEs. In most of the States, a qualified medical assessor has not been appointed and personnel licensing staff who designate medical examiners are not sufficiently qualified and experienced to conduct effective supervision and control. In many States, indoctrination and familiarization training of the appointed assessors have not been tailored to enable them to clearly understand their duties and responsibilities within the CAA, particularly with respect to the supervision and control of DMEs. These tasks include the inspection of premises and equipment, the verification of the use of the latest ICAO SARPs by DMEs, as applicable, the provision of up-to-date refresher training, the timely transmittal of reports to the licensing authority and record keeping.

4.4 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE OPS AREA

4.4.1 Ensuring that air operators comply with Annex 6 requirements

4.4.1.1 More than 30 per cent of the States have not implemented thorough evaluations, based on a documented process for the certification of air operators. In addition, 20 per cent of the States have not defined the functions and responsibilities of the flight operations inspection organization and 50 per cent of them do not have sufficient qualified human resources to carry out their functions and mandate.

4.4.1.2 In addition, non-expiring AOCs practices are widely adopted and less than 50 per cent of the States have not established and implemented a comprehensive surveillance programme, which creates conditions for potential safety concern situations.

4.4.1.3 More than 40 per cent of the States have not ensured compliance with Annex 6, Part I requirement, whereby an operator of an aircraft of a maximum certificated take-off mass in excess of 27 000 kg must establish and maintain a flight data analysis programme. In addition, nearly the same percentage of the States do not ensure that the flight data analysis programme contains adequate safeguards to protect the source(s) of the data.

4.4.2 Establishing and implementing procedures for the evaluation and issuance of approvals and authorizations contained in the operations specifications

4.4.2.1 Some improvements in establishing procedures for the issuance of approvals and authorizations contained in the operations specifications associated with the air operator certificate (AOC) have been achieved, improving compliance from 40 per cent to nearly 65 per cent of the States. For almost 85 per cent of the States, significant improvement has been achieved in the establishment of procedures for the approvals of CAT II and III instrument approaches.

4.4.2.2

Nearly 35 per cent of States have not complied with the requirement to implement an effective system to ensure that operations evaluation for the issuance of approvals and authorizations, including the conduct of CAT II and III instrument approaches, before such authorizations are granted. In many cases, there is a lack of competent technical staff with the required level of qualifications and experience. There is no fully documented process for the issuance of these approvals and authorizations. Relevant records are not kept as part of the initial approval and continuous surveillance process, and coordination between operations and airworthiness inspectors is not guaranteed.

4.4.3 Reviewing dangerous goods procedures of air operators

4.4.3.1 Almost 75 per cent of the States have not implemented an effective system for safety oversight of the various entities involved in the transport of dangerous goods. In about 40 per cent of the States, the authorities have not effectively reviewed the dangerous goods procedures of air operators, contained in the operations and ground handling manuals, mostly due to a lack of qualified dangerous goods inspectors. Nearly 50 per cent of the States have not kept records of dangerous goods approvals. In addition, in more than 40 per cent of the States, dangerous goods inspector procedures have not been established and implemented.

4.4.4 Establishing and implementing a surveillance programme

4.4.4.1 Nearly 50 per cent of the States have not established and implemented a comprehensive surveillance programme to verify that all AOC holders in the State complied, on a continuing basis, with national regulations, international standards as well as the provisions of the AOCs and associated operations specifications. In more than 40 per cent of the cases, the surveillance programmes established by the States are not fully implemented, and records of inspections conducted are not systematically kept.

4.4.4.2 Almost 50 per cent of the States have not established the frequency of inspections, based on available safety indicators or results of previous inspections, and have not taken into account high-risk items detected over a series of inspections. In addition, over 60 per cent have not included risk-based ramp inspections of aircraft operated by national and foreign air operators. Furthermore, an equal number of the States has not verified if foreign air operators complied, on a continuing basis, with international standards as well as the provisions of their AOCs and associated operations specifications.

4.4.5 Implementation of an enforcement system

4.4.5.1 Nearly 35 per cent of the States are still challenged by the establishment of basic enforcement policies and procedures. This situation gets worse in relation to the implementation of enforcement actions in the area of operations, with less than 50 % implementation average of all enforcement related issues.

4.4.5.2 Nearly 50 per cent of the States have not implemented a system to resolve deficiencies detected while inspecting, using a documented process or a system which monitors and records progress, including actions taken by the air operator in resolving identified safety issues. In addition, the same percentage applies for not implementing a system to track past deficiencies to ensure timely resolution and to take appropriate actions in case of violation.

4.4.5.3 Almost 75 per cent of the States have not established and implemented a process for reporting dangerous goods incidents and accidents, with procedures for investigating and taking actions in case of violations. In addition, a majority of States have not implemented a system for compiling information concerning accidents or incidents which occur on their territory and involve the transport of dangerous goods originating from or destined for another State.

4.5 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE AIR AREA

4.5.1 Implementing a formal surveillance programme to verify that all AMOs and AOC holders comply, on a continuing basis, with airworthiness-related national regulations and international standards

4.5.1.1 About 50 per cent of the States have not developed a comprehensive surveillance programme with appropriate frequency of surveillance activities, or have not implemented or fully implemented the surveillance programme. Common issues with the surveillance programmes include:

a) The surveillance programme does not cover all aspects of the operation of the AOC holder or AMO;
b) There is no mechanism established and implemented to ensure that the frequency of the surveillance activities is appropriate, which results in insufficient surveillance; and
c) The surveillance programme does not include random checks.

4.5.1.2 The continued validity of an AOC or AMO certificate depends on the AOC holder or the AMO remaining in compliance with the applicable national regulations, international standards, AOCs and the corresponding operations specifications or the AMO certificates. States are therefore required to verify, on a continuing basis, the compliance status of AOC holders and AMOs. To achieve this objective, States need to develop and implement a formal surveillance programme which should cover all significant aspects of the operator's or organization's procedures and practices with appropriate frequency. In addition, scheduled surveillance activities should be augmented by periodic random checks on all aspects of the operation of the AOC holder or AMO.

4.5.2 Conducting ongoing surveillance of air operators' reliability programmes and initiating special evaluations or imposing special operational restrictions when information obtained from reliability monitoring indicates a degraded level of safety

4.5.2.1 About 40 per cent of the States have not established and implemented a formal system to conduct ongoing surveillance of air operators' reliability programmes, and about 50 per cent of the States have not established and implemented a documented process to initiate special evaluations or impose special operational restrictions when information obtained from reliability monitoring indicates a degraded level of safety, thus they cannot ensure that appropriate actions are taken in a timely manner. When applicable, the air operator should develop a reliability programme in conjunction with the maintenance programme in order to ensure the continuing airworthiness of aircraft. The purpose of the reliability programme is to ensure that the aircraft maintenance programme tasks are effective, and their recurrence at regular intervals is adequate.

4.5.2.2 As part of the maintenance programme approval process, the operator should submit a reliability programme and appropriate information to the CAA for evaluation and approval. The reliability programme should be administered and controlled by the operators and monitored by the airworthiness inspectors. Reliability monitoring is also essential for the approval of extended diversion time operations (EDTOs). In the event that an acceptable level of reliability is not maintained, that significant adverse trends exist or that significant deficiencies are detected in the design or the conduct of the operation, the State of the Operator should initiate a special evaluation, impose operational restrictions, if necessary, and

stipulate corrective actions for the operator to adopt in order to resolve the problems in a timely manner or suspend the EDTO authorization unless there is a corrective action plan acceptable to the CAA.

4.5.3 Developing and implementing procedures for the verification of operations derived-equipment which are not part of the type certification of aircraft

4.5.3.1 Although around 75 per cent of the States have promulgated regulations for operations-derived equipment which are not part of the type certification of aircraft and have developed the procedures and associated checklists for the verification of such equipment, about 40 per cent of the States have not effectively ensured that all required equipment are installed and maintained for the types of operation to be conducted.

4.5.3.2 In addition to the minimum equipment necessary for the issuance of a certificate of airworthiness, certain instruments and equipment should also be installed or carried, as appropriate, in aeroplanes according to the aeroplane used and to the circumstances under which the flight is to be conducted. Such instruments and equipment include flight data recorder (FDR), cockpit voice recorder (CVR), ground proximity warning system (GPWS), emergency locator transmitter (ELT), airborne collision avoidance system (ACAS), and those for visual flight rules (VFR) flights, over water operations, flights over designated land, high altitude flights as well as operations in icing conditions.

4.5.4 Implementing a documented process and/or a method to track identified deficiencies, to evaluate corrective actions presented by air operators and/or AMOs and to take appropriate actions, up to and including enforcement measures, to resolve identified deficiencies and safety issues in a timely manner

4.5.4.1 About 36 per cent of the States have not established and/or effectively implemented a documented comprehensive process or method to track identified deficiencies, including the subsequent evaluation of the corrective actions presented by the air operators or AMOs, and to take appropriate actions, including enforcement measures, to ensure the timely resolution of the deficiencies identified during surveillance activities.

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

4.5.5 Conducting surveillance of tasks delegated to other CAA divisions, State bodies, Contracting States, regional organizations, private agencies or individuals

4.5.5.1 Although only a limited number of States have certain aviation safety oversight tasks delegated to other CAA divisions, State bodies, Contracting States, regional organizations, private agencies or individuals, about 36 per cent of them have not established and/or effectively implemented a documented comprehensive process to conduct surveillance of the tasks performed by the delegated entities/individuals. Some of the States have not conducted any of such surveillance at all.

4.5.5.2 States without sufficient resources or competencies might consider delegating specific safety oversight functions and activities to a regional safety oversight organization (RSOO), a regional accident and incident investigation organization or another State. States may also consider delegating activities to other recognized entities — like trade associations, industry representative organizations or other bodies that may collect and analyse data on their behalf, provide training or conduct surveillance and monitoring activities. However, it should be noted that the ultimate responsibility for safety oversight remains with the States themselves, regardless of the safety oversight-related functions and activities that they may choose to delegate, which implies that although a State may delegate specific functions and activities, it will still need sufficient personnel to interact with the delegated entity and to process information provided by that entity. States should also consider the establishment of appropriate technical and administrative processes to ensure that the delegated functions are carried out effectively.

4.6 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE AIG AREA

4.6.1 Establishing an independent accident investigation authority and investigation processes

4.6.1.1 Less than 50 per cent of the States have established an autonomous accident investigation authority (or

commission, board or other body) for the investigation of aircraft accidents and incidents that is independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. The civil aviation authority being in charge of accident and incident investigation, as in the majority of States, has proven to be inadequate, because conflicts arose when the investigation findings identified deficiencies in the performance of the safety oversight functions.

4.6.2 Ensuring the effective investigation of aircraft serious incidents as per Annex 13

4.6.2.1 More than 60 per cent of the States have not established a process to ensure the investigation of aircraft serious incidents, as required by Annex 13. In most cases, there is insufficient or no guidance established by the State (including actions to be taken, timelines and personnel to be involved in the assessment and decision-making processes) to support the assessment process, following the receipt of an incident notification, in order to decide whether the State will launch an independent investigation as per Annex 13. The timely identification of serious incidents is all the more challenging for States which do not have a permanent, independent investigation authority or have such an authority but without all the necessary qualified and experienced personnel.

4.6.2.2 In practice, the effective investigation of serious incidents is also affected by the lack of immediate reporting — or, worse, the total lack of reporting — of serious incidents (or incidents that may be serious incidents) by service providers (e.g. air operators and ATS providers) to the designated State authority (ideally the State's permanent, independent investigation authority, when such an entity has been established). Only a small number of States have a comprehensive process as well as the necessary qualified and experienced personnel (technical staff and management personnel of the accident investigation authority) to ensure that investigations of serious incidents are effectively carried out when required by Annex 13. The lack of thorough, independent investigations of serious incidents may leave unidentified and unacted upon safety issues, which could then lead to an accident or even a major fatal accident.

4.6.3 Providing sufficient training to aircraft accident investigators

4.6.3.1 More than 60 per cent of the States have not developed a comprehensive and detailed training programme for their aircraft accident investigators. Even though many States have started developing such a training programme, the content is often insufficient. In many cases, recurrent and specialized/advanced training are not addressed and OJT is not addressed in sufficient, practical details, including the phases of the OJT (e.g. observation or performance of tasks under supervision), the necessary qualification and experience of OJT instructors, and the assessment of the OJT outcome. As for the implementation of training programmes, it is often limited by an insufficient budget and by an ad hoc rather than a planned approach to the provision of training. Only a small number of States — mostly States with more mature accident investigation authorities — provide their investigators with the necessary training to effectively conduct their tasks. The provision of investigation-related training is particularly challenging for States which do not have a permanent investigation authority.

4.6.3.2 It is worth noting that training is also necessary for technical personnel of States which, through signed agreements, fully delegate accident and serious incident investigations to another State or to a Regional Accident and Incident Investigation Organization (RAIO), as the State of Occurrence remains responsible for carrying out the first actions (including the preservation of evidence) following the occurrence. Insufficient training contributes to many shortcomings, including:

b) lack of preservation of essential, volatile evidence following an accident or serious incident;
c) poor management of investigations; and
d) poor investigation reports and/or safety recommendations.

4.6.4 Ensuring proper coordination and separation between the "Annex 13" investigation and the judicial investigation

4.6.4.1 Less than 50 per cent of the States have effective and formal means, including appropriate provisions in the legislation and formal arrangements, for the proper coordination of investigation activities between the investigation authority and the judicial authority. Such means are essential to ensure the necessary separation between the two investigations (e.g. for the conduct of interviews with witnesses and for the analysis of the information collected). They are also necessary for governing the coordination of activities on the scene of an accident (e.g. for the securing and custody of evidence, and the identification of victims) and for CVR and FDR read-outs and the

relevant examinations and tests, in particular to ensure that investigators have ready access to all relevant evidence and that flight recorder read-out analysis and other necessary examinations and testing are not impeded or significantly delayed due to judicial proceedings.

4.6.4.2 While provisions in the primary legislation as well as formal arrangements are needed to address the above-mentioned issues, in practice, many States have initiated actions (such as seminars/workshops or courses involving accident investigation authorities and judicial authorities) to help build a constructive dialogue and understanding between the two communities, which have distinct legal basis and procedures. Making such arrangements is much more challenging for States which do not have a permanent, independent accident investigation authority.

4.6.5 Establishing and implementing a State's mandatory and voluntary incident reporting systems

4.6.5.1 Less than 50 per cent of the States have established an effective mandatory incident reporting system, as required by Annex 19. Such a system needs to be supported by the appropriate legislation/regulations, procedures and guidance material. Many of these States have not clarified in their regulations the types of occurrence to be reported by service providers in the various aviation domains, and under which timescale. For example, it is advisable that the reporting of accidents and serious incidents be done within a few hours (as per Annex 13: "as soon as possible and by the quickest means available") ideally directly to the State's accident investigation authority, when established, since those occurrences demand an immediate action from the State (the institution of an investigation).

4.6.5.2 On the other hand, incidents other than serious incidents are normally received and processed by the State's CAA and are also analysed by the service provider itself within the framework of its SMS, thus not demanding any immediate action from the State. For these incidents, the deadline for reporting to the State may be longer so as not to overburden service providers (around 2 to 5 days would be reasonable). States should provide clear guidance to the industry on which incidents will be of interest to be reported and when to do it. An ineffective State mandatory reporting system not only affects the effectiveness of the CAA's continuous surveillance programme, but also limits the ability of the State to follow the data-driven approach which is necessary for the implementation of the State Safety Programme (SSP).

4.6.5.3 With respect to the State voluntary incident reporting system, which is also required by Annex 19, less than 70 per cent of the States have effectively implemented such a system, which should be non-punitive and afford protection to the sources of information. The effective implementation of a voluntary incident reporting system requires not only the proper legislation, procedures and mechanisms to have been established by the State, but also significant efforts by the authority designated to manage the system to encourage reporting within the State's aviation community and to establish trust in the non-punitive nature of the system. Such a voluntary reporting system at State level complements the voluntary reporting systems which should be established within each service provider having an SMS. It enables the capture of safety issues and hazards which may not otherwise be captured within the State mandatory incident reporting system.

4.6.6 Establishing an aircraft accident and incident database and performing safety data analyses at State level

4.6.6.1 Almost 60 per cent of the States have not established an accident and incident database to facilitate the effective analysis of information on actual or potential safety deficiencies and to determine any preventive actions required. Over the last decade, many States have been trained in the use of the European Co-ordination Centre for Aviation Incident Reporting Systems (ECCAIRS) database, which enables States to ensure compatibility with the ICAO accident/incident data reporting (ADREP) taxonomy. However, many States do not have the qualified technical personnel to properly administer their database. In addition, the data collected is not shared with the concerned stakeholders in order to identify actual or potential safety deficiencies, adverse trends and to determine any preventive actions required. The unavailability of such information affects the ability of the State to effectively implement an SSP.

4.7 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE ANS AREA

4.7.1 Implementing a surveillance programme and an enforcement system

4.7.1.1 More than 50 per cent of the States do not effectively conduct surveillance over its instrument flight procedure design services, search and rescue services, cartographic services and the aeronautical information

services providers. Consequently, 58 per cent of the countries lack of an implemented system to take appropriate actions, up to and including enforcement measures, to resolve in a timely manner identified safety issues in those areas.

4.7.1.2 In the air traffic service (ATS) area, only 43 per cent of the States ensure that safety reviews are conducted regularly by qualified personnel (trained, experienced and with the required expertise to fully understand relevant SARPs, Procedures for Air Navigation Services (PANS), safe operating practices, and human factors principles.

4.7.2 Establishing a comprehensive training strategy to acquire and maintain qualified inspectorate personnel

4.7.2.1 50 per cent of the States have not developed a comprehensive training strategy supported by sufficient financial resources for its implementation. These States have not sufficiently detailed their training programmes to ensure that the ANS inspectors acquire and maintain the necessary competencies to effectively perform the related safety oversight functions. There is mainly a lack of documented processes to ensure that the inspectors have satisfactorily completed their on-the-job training (OJT) before being assigned their tasks and responsibilities. The lack or insufficient number of qualified inspectors remains the main obstacle to the implementation of an effective State safety oversight system.

4.8 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE AGA AREA

4.8.1 Implementing aerodrome certification requirements

4.8.1.1 More than 40 per cent of the States have not established a process for the certification of aerodromes and over 60 per cent of States have not yet fully implemented the certification requirements. The challenge faced by most States that have not certified their aerodromes is the insufficient number of qualified and experienced aerodrome technical staff with the appropriate mix of technical disciplines to be able to cover all aspects involved in the certification of aerodromes. In addition, many States have not yet established and implemented a comprehensive enforcement system to deal with identified non-compliances and to ensure safe aerodrome operation.

4.8.2 Establishing and implementing a formal surveillance programme for certified aerodromes, with associated procedures and plans

4.8.2.1 Around 60 per cent of the States have not developed or implemented a formal surveillance programme for the continuing supervision of the operations conducted by aerodrome operators. States are required to establish and implement a surveillance programme to ensure that aerodrome certificate holders meet, on a continuous basis, their obligations under the certificate and the requirements of the accepted/approved aerodrome manual. This would normally include surveillance procedures for each type of surveillance activities, as well as periodic surveillance plans with adequate frequencies reflecting the maturity of the certificate holder. Continuous surveillance should also include unannounced inspections, as needed.

4.8.3 Establishing a mechanism to deal with identified deficiencies and exemption procedures

4.8.3.1 Many States have not yet established and implemented a mechanism to deal with identified deficiencies and for their classification, and to ensure that, after the audit of their aerodrome operators, further steps, such as the conduct of safety assessments, are taken by the aerodrome regulatory authority. More than 75 per cent of the States have not established a process to validate the use of aeronautical studies or risk assessments to justify an application for an exemption or exception as well as its continuous need.

4.8.4 Establishing and implementing a quality system to ensure the accuracy, consistency, protection and integrity of aerodrome-related safety data published in the State's AIP

4.8.4.1 More than 70 per cent of the States have not established and implemented a quality system to verify the accuracy and compliance of aerodrome data with the regulations and to ensure that the accuracy, integrity and protection requirements for aeronautical data reported by the aerodrome operator are met throughout the data transfer process from the survey/origin to the next intended use. This generally results in the publication of inaccurate data in the AIP of these States.

Chapter 5

COMPLIANCE CHECKLISTS

5.1 PROGRESS OF STATES IN COMPLETION OF COMPLIANCE CHECKLISTS

5.1.1 The compliance checklists (CC) have been established to assist Member States and ICAO in ascertaining the status of implementation of SARPs and in identifying the level of compliance of their national regulations and practices vis-à-vis the relevant SARPs.

5.1.2 During the 2016 – 2018 period covered in this report, there was a 7.5 per cent improvement in the number of SARPs reported by States using the CCs, as compared to that of the previous period (2013 to 2015), going from 63.5 per cent to 71 per cent.

5.1.3 All but 7 of ICAO's Member States have reported various degrees of completion in their level of compliance to the SARPs. An improvement in the quantity and quality of CC reporting was expected as a result of the following:

a) increased awareness and proficiency with the online framework (OLF) tools following regional- and State-sponsored USOAP CMA workshops;
b) completion of Annex 9 following State letter EC 6/3-15/90; and
c) development of the guidance material related to determination of differences, with examples which will be included in the upcoming *Manual on Notification and Publication of Differences.*

Reported level of compliance to SARPs as reported by Member States through the Compliance Checklists

48.5%
No Difference

35.08%
Incomplete Information

9.12%
Not Applicable

5.14%
Less protective or partially implemented or not implemented by the State

1.08%
Different in character or other means of compliance

1.08%
More Exacting or exceeds

Appendix A

DEFINITIONS AND TERMINOLOGY

DEFINITIONS

Audit. A USOAP CMA on-site activity during which ICAO assesses the effective implementation of the critical elements (CEs) of a safety oversight system and conducts a systematic and objective review of a State's safety oversight system to verify the status of a State's compliance with the provisions of the Convention or national regulations and its implementation of ICAO Standards and Recommended Practices (SARPs), procedures and aviation safety best practices.

Audit area. One of eight audit areas pertaining to USOAP, i.e. primary aviation legislation and civil aviation 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).

Compliance checklist (CC). Assists the State in ascertaining the status of implementation of ICAO Standards and Recommended Practices (SARPs) and in identifying any difference that may exist between the national regulations and practices and the relevant provisions in the Annexes to the Convention.

Corrective action plan (CAP). A plan of action to eliminate the cause of a deficiency or finding.

Critical elements (CEs). The critical elements of a safety oversight system encompass the whole spectrum of civil aviation activities. They are the building blocks upon which an effective safety oversight system is based. The level of effective implementation of the CEs is an indication of a State's capability for safety oversight.

Effective implementation (EI). A measure of the State's safety oversight capability, calculated for each critical element, each audit area or as an overall measure. The EI is expressed as a percentage.

Finding. Generated in a USOAP CMA activity as a result of a lack of compliance with Articles of the Convention, ICAO Assembly Resolutions, safety-related provisions in the Annexes to the Convention, Procedures for Air Navigation Services (PANS) or a lack of application of ICAO guidance material or good aviation safety practices.

ICAO Coordinated Validation Mission (ICVM). A USOAP CMA on-site activity during which an ICAO team of subject matter experts collects and assesses evidence provided by the State demonstrating that the State has implemented corrective actions (or mitigating measures for significant safety concerns) to address previously identified findings; ICAO validates the collected evidence and information.

Lack of effective implementation (LEI). *A measure of the State's lack of safety oversight capability, calculated for each critical element, each audit area or as an overall measure. The LEI is expressed as a percentage.*

Mitigating measure. An immediate action taken to resolve a significant safety concern (SSC).

Objective evidence. *Information that can be verified, supporting the existence of a documented system and indicating that the system generates the desired results.*

Off-site validation activity. A USOAP CMA activity during which an ICAO team of subject matter experts assesses corrective actions implemented by a State and validates submitted supporting evidence at the ICAO HQ without an on-site visit to the State.

Oversight. *The active control of the aviation industry and service providers by the competent regulatory authorities to ensure that the State's international obligations and national requirements are met through the establishment of a system based on the critical elements.*

Protocol question (PQ). *The primary tool used in USOAP for assessing the level of effective implementation of a State's safety oversight system based on the critical elements, the Convention on International Aviation, ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS) and related guidance material.*

Protocol question (PQ) finding. Under the USOAP CMA, each finding is generated and expressed in terms of one protocol question (PQ); issuance of a PQ finding changes the status of the related PQ to not satisfactory.

Safety. *The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.*

Safety risk. The predicted probability and severity of the consequences or outcomes of a hazard.

Scope. Audit areas and protocol questions (PQs) addressed and covered in a USOAP CMA activity.

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.

Validation. Confirming submitted information in order to determine either the existence of a protocol question (PQ) finding or the progress made in resolving the PQ finding.

ACRONYMS AND ABBREVIATIONS

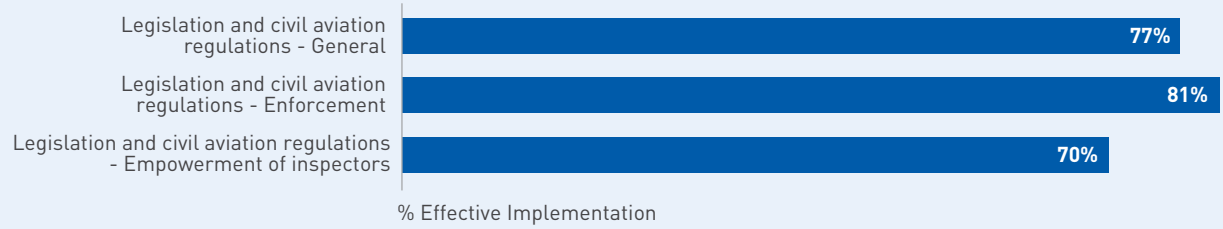
AGA	Aerodromes and ground aids
AIG	Aircraft accident and incident investigation
AIR	Airworthiness of aircraft
ANB	Air Navigation Bureau
ANS	Air navigation services
AOC	Air operator certificate
CAA	Civil Aviation Authority
CAP	Corrective action plan
CC	Compliance checklist
CE	Critical element
CMA	Continuous Monitoring Approach
EFOD	Electronic Filing of Differences
EI	Effective implementation
GASP	Global Aviation Safety Plan
iSTARS	Integrated Safety Trend Analysis and Reporting System
ICVM	ICAO Coordinated Validation Mission
LEG	Primary aviation legislation and civil aviation regulations
LEI	Lack of effective implementation
MIR	Mandatory information request
MOU	Memorandum of Understanding
OAS	Safety and Air Navigation Oversight Audit Section
OPS	Aircraft operations
ORG	Civil aviation organization
PANS	Procedures for Air Navigation Services
PEL	Personnel licensing and training
PQ	Protocol Question
RCMC	Regional Continuous Monitoring Coordinator
RO	Regional office
RSOO	Regional safety oversight organization
SAAQ	State aviation activity questionnaire
SARPs	Standards and Recommended Practices
SMS	Safety management system
SSC	Significant safety concern
SSP	State safety programme
USOAP	Universal Safety Oversight Audit Programme

Appendix B

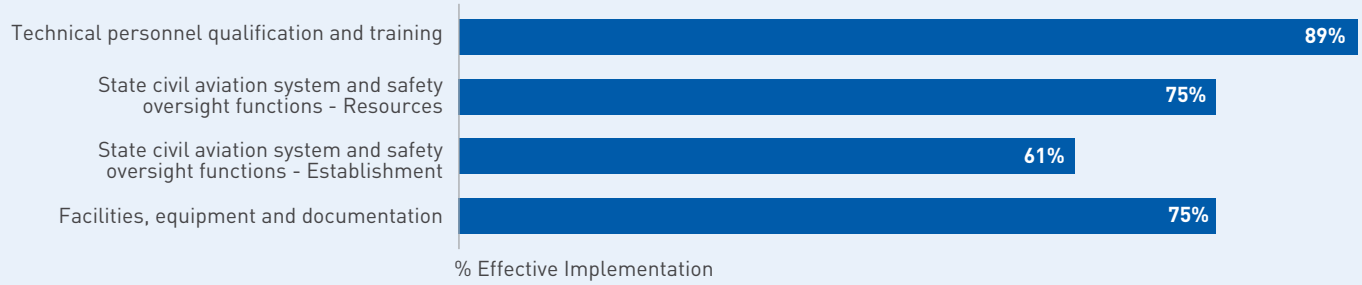
STATISTICAL DATA FOR SUBGROUPS OF EACH AUDIT AREA

The following graphs depict Effective Implementation (EI) rates for each subgroup in the eight audit areas.

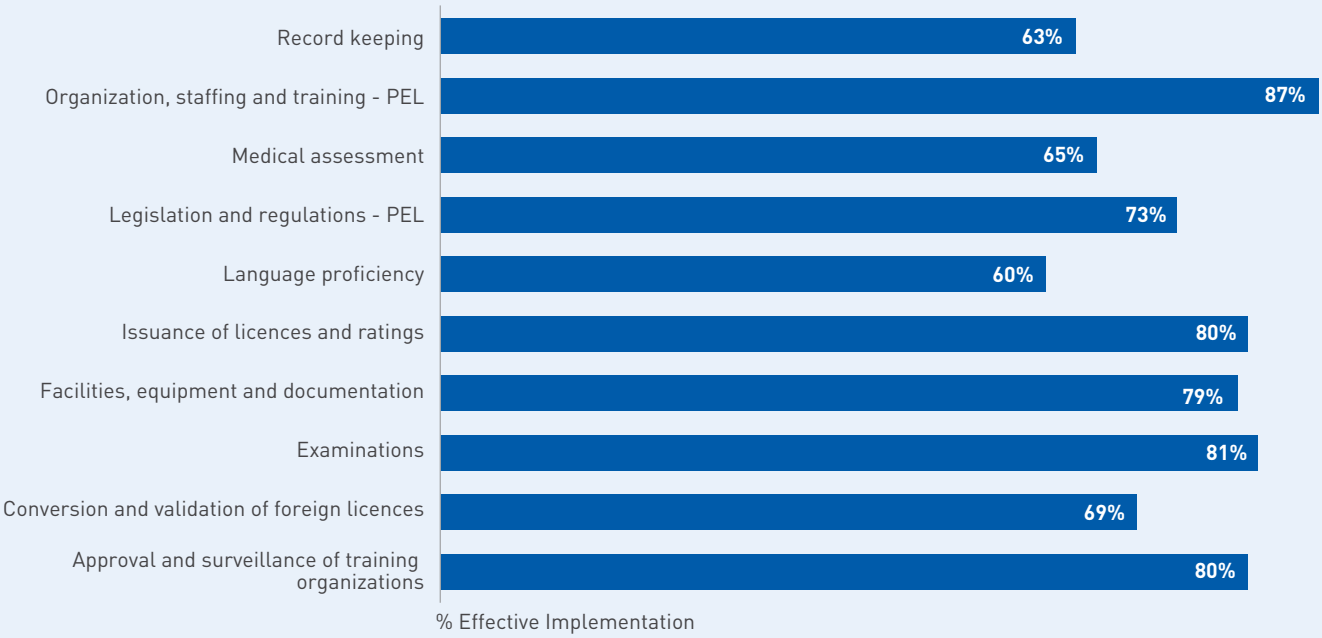
LEG



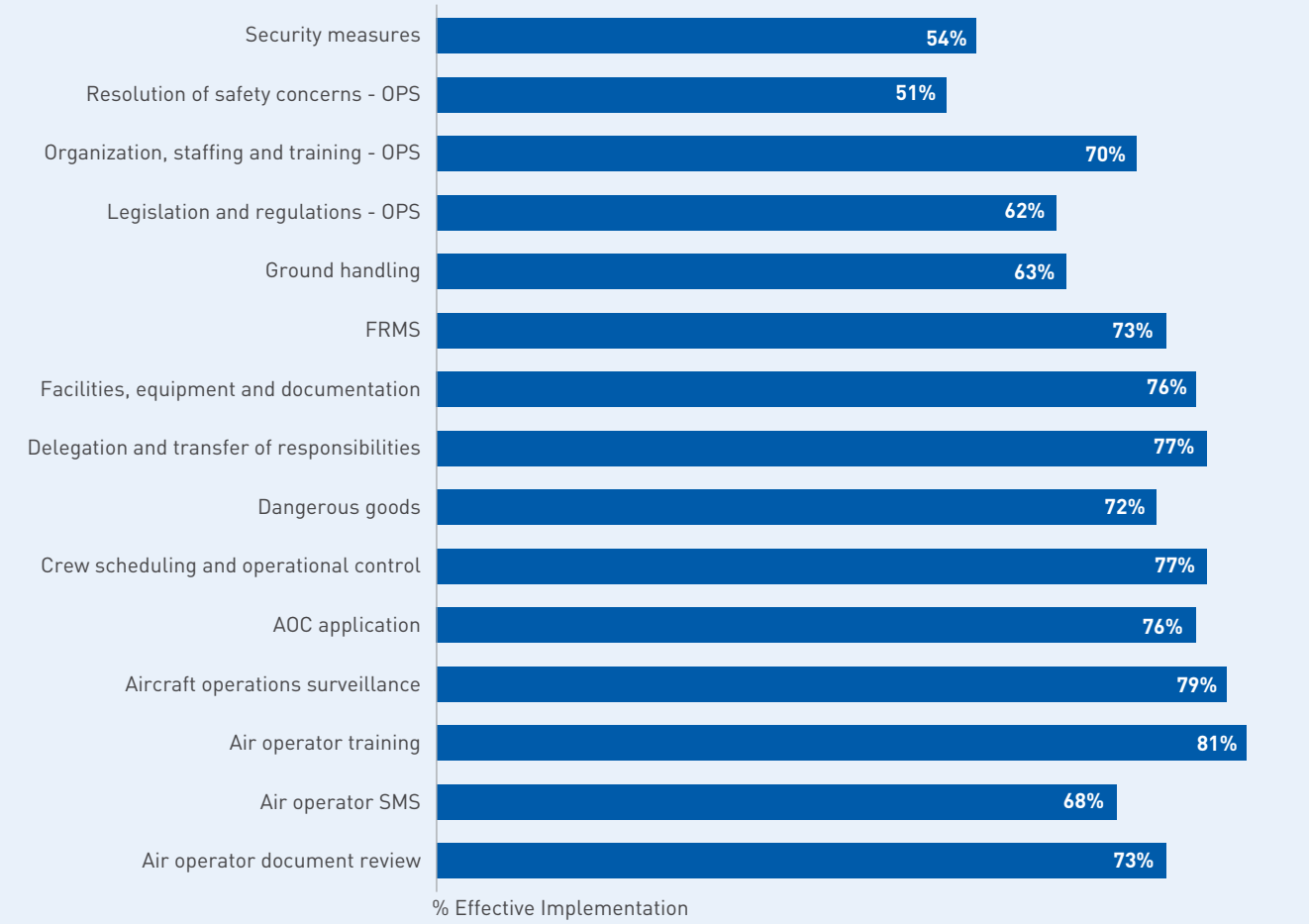
ORG



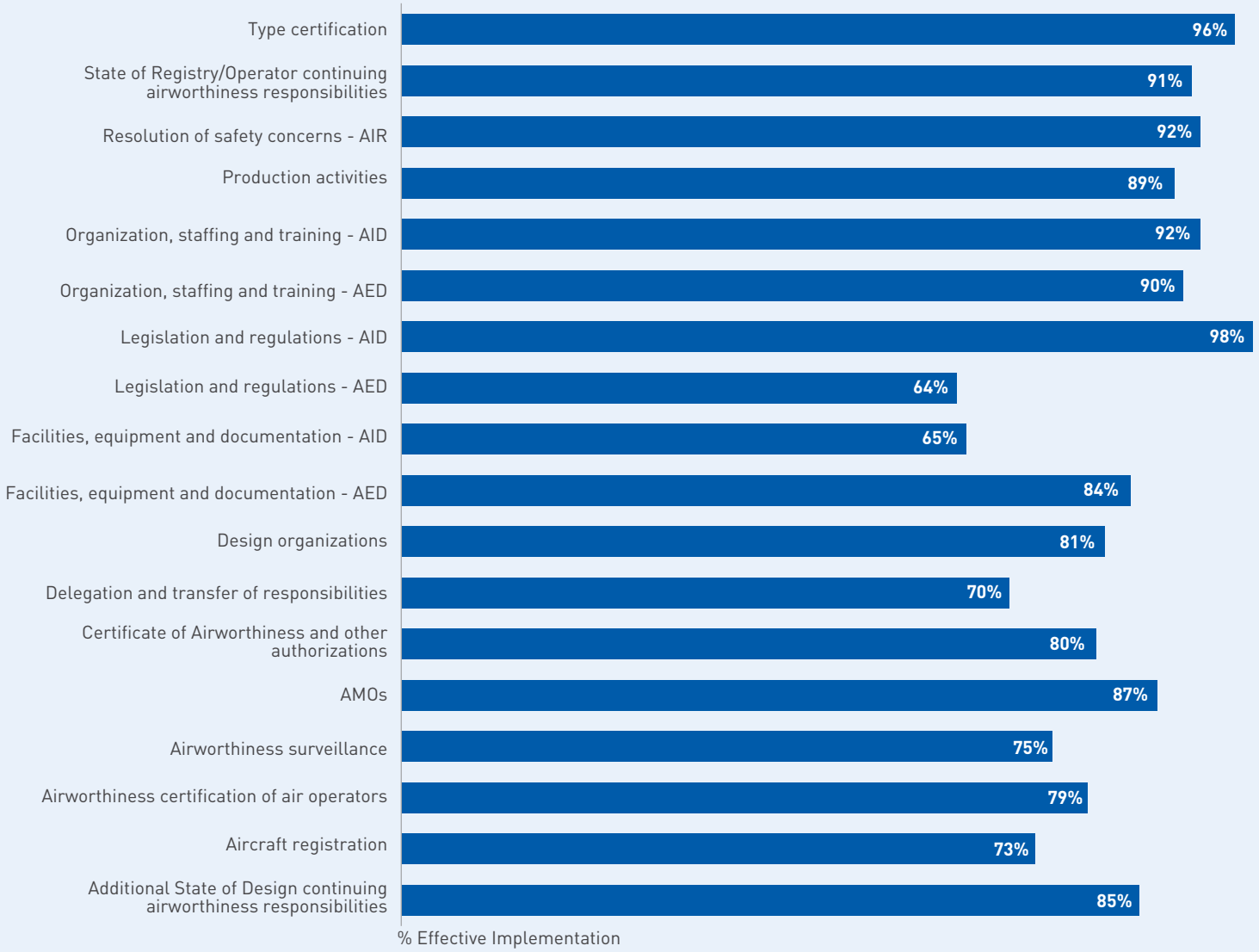
PEL


Record keeping
63%
Organization, staffing and training - PEL
87%
Medical assessment
65%
Legislation and regulations - PEL
73%
Language proficiency
60%
Issuance of licences and ratings
80%
Facilities, equipment and documentation
79%
Examinations
81%
Conversion and validation of foreign licences
69%
Approval and surveillance of training organizations
80%
% Effective Implementation

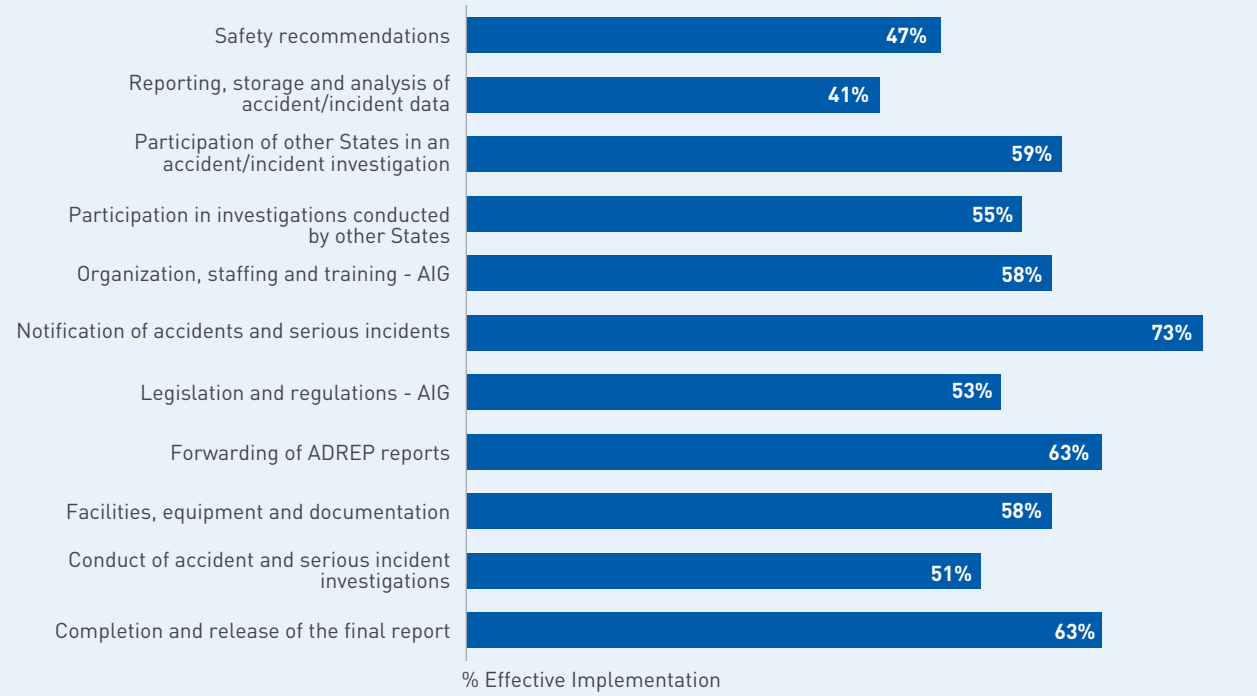
OPS


Security measures
54%
Resolution of safety concerns - OPS
51%
Organization, staffing and training - OPS
70%
Legislation and regulations - OPS
62%
Ground handling
63%
FRMS
73%
Facilities, equipment and documentation
76%
Delegation and transfer of responsibilities
77%
Dangerous goods
72%
Crew scheduling and operational control
77%
AOC application
76%
Aircraft operations surveillance
79%
Air operator training
81%
Air operator SMS
68%
Air operator document review
73%
% Effective Implementation

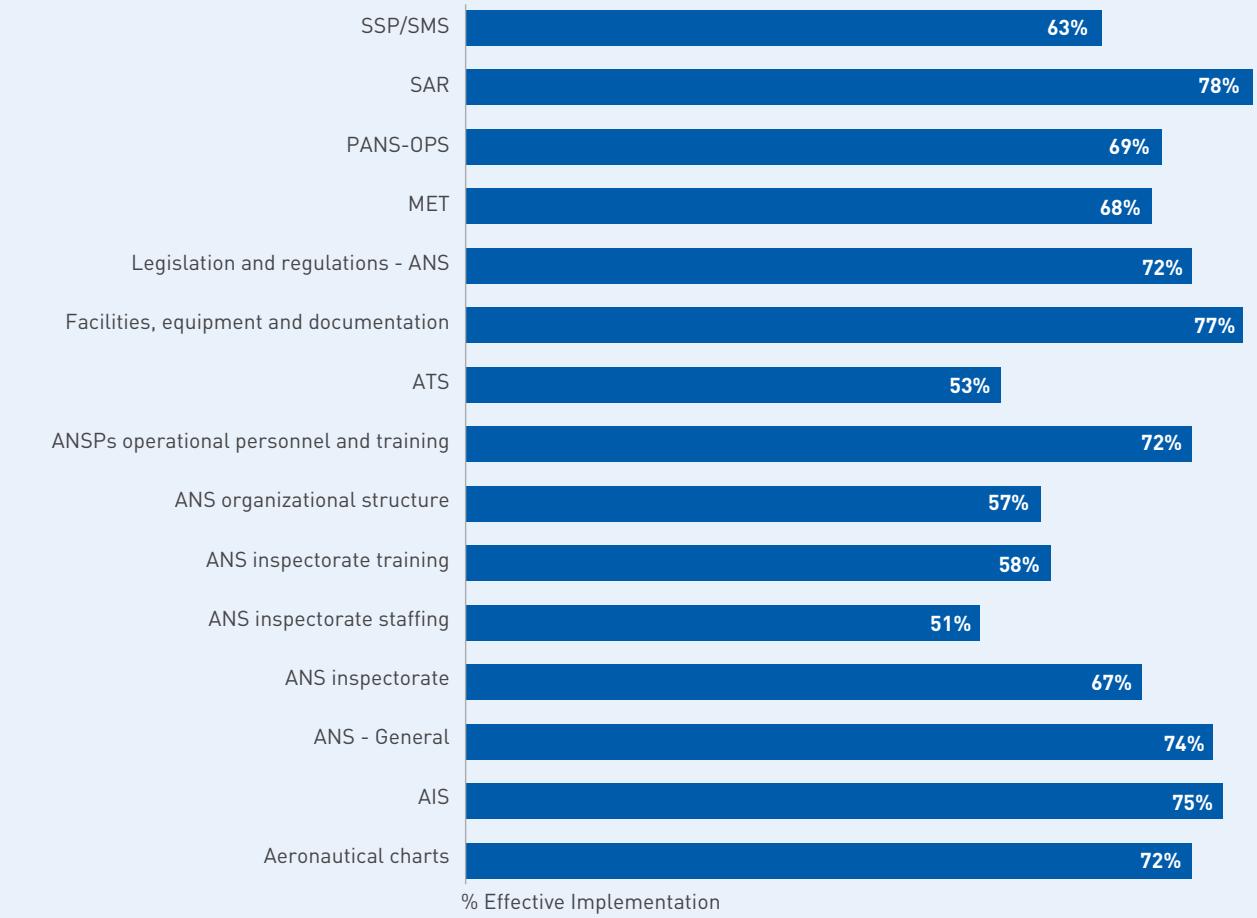
AIR


Type certification
96%
State of Registry/Operator continuing airworthiness responsibilities
91%
Resolution of safety concerns - AIR
92%
Production activities
89%
Organization, staffing and training - AID
92%
Organization, staffing and training - AED
90%
Legislation and regulations - AID
98%
Legislation and regulations - AED
64%
Facilities, equipment and documentation - AID
65%
Facilities, equipment and documentation - AED
84%
Design organizations
81%
Delegation and transfer of responsibilities
70%
Certificate of Airworthiness and other authorizations
80%
AMOs
87%
Airworthiness surveillance
75%
Airworthiness certification of air operators
79%
Aircraft registration
73%
Additional State of Design continuing airworthiness responsibilities
85%
% Effective Implementation

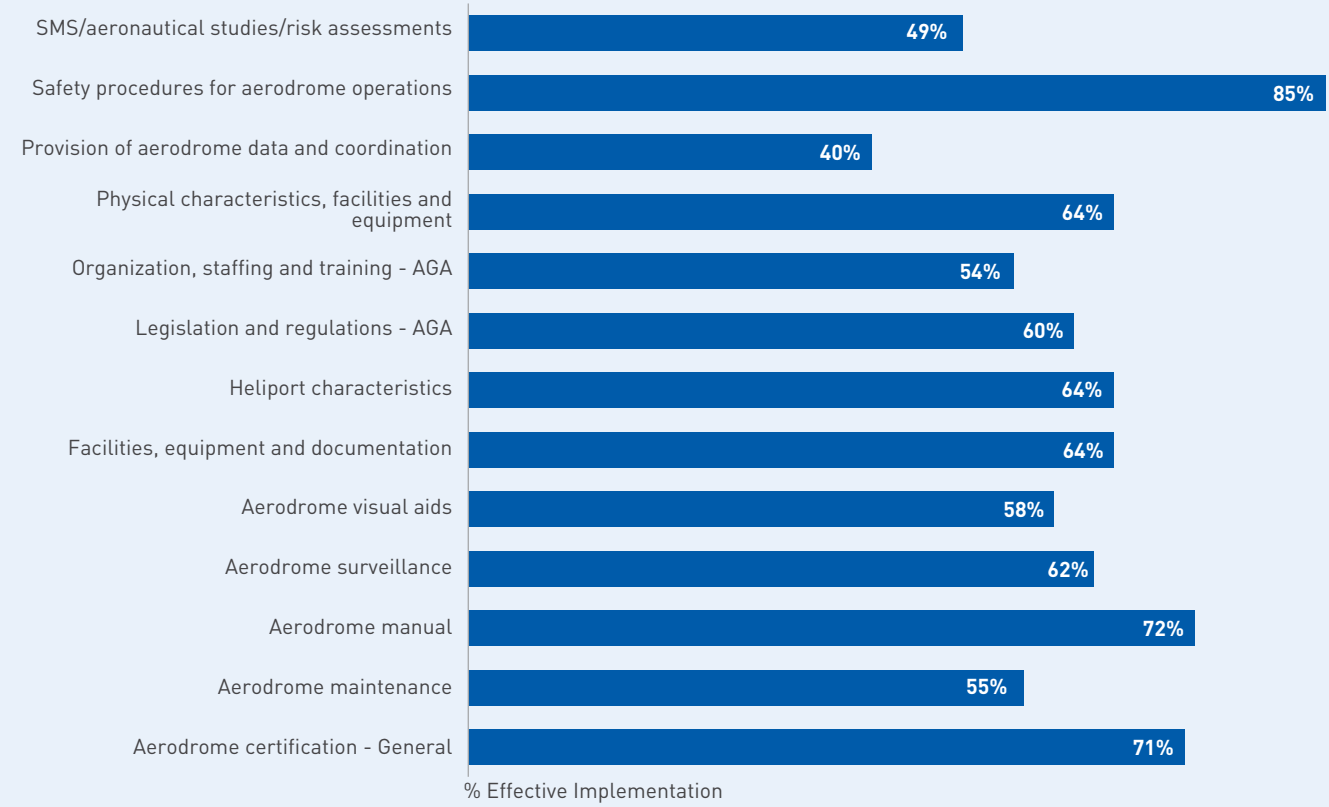
AIG


Safety recommendations
47%
Reporting, storage and analysis of accident/incident data
41%
Participation of other States in an accident/incident investigation
59%
Participation in investigations conducted by other States
55%
Organization, staffing and training - AIG
58%
Notification of accidents and serious incidents
73%
Legislation and regulations - AIG
53%
Forwarding of ADREP reports
63%
Facilities, equipment and documentation
58%
Conduct of accident and serious incident investigations
51%
Completion and release of the final report
63%
% Effective Implementation

ANS


SSP/SMS
63%
SAR
78%
PANS-OPS
69%
MET
68%
Legislation and regulations - ANS
72%
Facilities, equipment and documentation
77%
ATS
53%
ANSPs operational personnel and training
72%
ANS organizational structure
57%
ANS inspectorate training
58%
ANS inspectorate staffing
51%
ANS inspectorate
67%
ANS - General
74%
AIS
75%
Aeronautical charts
72%
% Effective Implementation

AGA


SMS/aeronautical studies/risk assessments
49%
Safety procedures for aerodrome operations
85%
Provision of aerodrome data and coordination
40%
Physical characteristics, facilities and equipment
64%
Organization, staffing and training - AGA
54%
Legislation and regulations - AGA
60%
Heliport characteristics
64%
Facilities, equipment and documentation
64%
Aerodrome visual aids
58%
Aerodrome surveillance
62%
Aerodrome manual
72%
Aerodrome maintenance
55%
Aerodrome certification - General
71%
% Effective Implementation

Appendix C

CONDUCTED USOAP CMA ACTIVITIES

Tables C-1 to C-3 below include information on USOAP CMA activities conducted from 1 January 2016 to 31 December 2018.

APAC: Asia and Pacific Office
ESAF: Eastern and Southern African Office
EUR/NAT: European and North Atlantic Office
MID: Middle East Office
NACC: North American, Central American and Caribbean Office
SAM: South American Office
WACAF: Western and Central African Office

TABLE C-1. USOAP CMA activities conducted in 2016

No.	State	ICAO Region	USOAP CMA Activity	Dates
1	Australia	APAC	Off-site Validation	11 April to 06 May 2016
2	Belgium	EUR/NAT	Off-site Validation	9 September to 14 October 2016
3	Benin	WACAF	Off-site Validation	17 October to 11 November 2016
4	Bolivia	SAM	ICVM	7 September to 11 November 2016
5	Cambodia	APAC	Audit	5 to 15 December 2016
6	Chad	WACAF	Off-site Validation	14 to 18 November 2016
7	Congo	WACAF	Off-site Validation	1 November to 30 December 2016
8	Cyprus	EUR/NAT	ICVM	22 to 29 November 2016
9	Dominican Republic	NACC	Off-site Validation	25 August to 15 September 2016
10	Dominican Republic	NACC	Off-site Validation	2 to 25 November 2016
11	Egypt	MID	ICVM	20 to 29 November 2016
12	El Salvador	NACC	Off-site Validation	25 August to 28 October 2016
13	Equatorial Guinea	WACAF	ICVM	12 to 16 December 2016
14	Finland	EUR/NAT	Off-site Validation	15 to 19 February 2016
15	Gabon	WACAF	Off-site Validation	25 August to 16 December 2016
16	Georgia	EUR/NAT	ICVM	7 to 15 April 2016
17	Guinea	WACAF	ICVM	21 to 29 November 2016
18	Guyana	SAM	ICVM	21 to 29 November 2016
19	Honduras	NACC	Audit	7 to 17 November 2016
20	Hungary	EUR/NAT	Off-site Validation	19 September to 20 November 2016
21	Indonesia	APAC	Off-site Validation	11 April to 06 May 2016
22	Ireland	EUR/NAT	Off-site Validation	8 September to 15 November 2016
23	Israel	EUR/NAT	Audit	8 to 17 November 2016

No.	State	ICAO Region	USOAP CMA Activity	Dates
24	Jamaica	NACC	ICVM	7 to 16 June 2016
25	Jamaica	NACC	Off-site Validation	8 August to 07 October 2016
26	Kazakhstan	EUR/NAT	ICVM	29 Mar to 04 April 2016
27	Kuwait	MID	Audit	20 to 31 March 2016
28	Kyrgyzstan	EUR/NAT	Audit	25 January to 05 February 2016
29	Lebanon	MID	ICVM	9 to 13 May 2016
30	Liberia	WACAF	Off-site MIR PQs Validation	25 to 26 August 2016
31	Malaysia	APAC	Audit	2 to 12 May 2016
32	Malta	EUR/NAT	Off-site Validation	7 November to 30 December 2016
33	Morocco	EUR/NAT	Audit	10 to 20 October 2016
34	Nepal	APAC	Off-site Validation	1 to 31 March 2016
35	New Zealand	APAC	Audit	5 to 15 December 2016
36	Nigeria	WACAF	Audit	14 to 25 March 2016
37	the former Yugoslav Republic of Macedonia	EUR/NAT	ICVM	14 September to 14 October 2016
38	Paraguay	SAM	Off-site Validation	27 April to 11 May 2016
39	Paraguay	SAM	ICVM	29 June to 05 July 2016
40	Senegal	WACAF	Audit	17 to 24 August 2016
41	Serbia	EUR/NAT	Off-site Validation	19 September to 20 November 2016
42	Sweden	EUR/NAT	ICVM	16 to 23 November 2016
43	Tajikistan	EUR/NAT	Audit	17 to 28 October 2016
44	Togo	WACAF	Off-site Validation	27 April to 03 May 2016
45	Togo	WACAF	ICVM	18 to 24 May 2016
46	Ukraine	EUR/NAT	Audit	4 to 11 April 2016
47	United Republic of Tanzania	ESAF	Off-site Validation	7 September to 20 December 2016
48	Uruguay	SAM	ICVM	26 January to 04 March 2016
49	Vanuatu	APAC	Off-site Validation	2 to 09 May 2016
50	Viet Nam	APAC	ICVM	15 to 21 June 2016
51	Zambia	ESAF	ICVM	2 to 09 March 2016

TABLE C-2. USOAP CMA activities conducted in 2017

No.	State	ICAO Region	USOAP CMA Activity	Dates
1	Angola	ESAF	ICVM	14 to 23 March 2017
2	Australia	APAC	Audit	3 to 10 April 2017
3	Australia	APAC	ICVM	9 to 13 October 2017
4	Bahamas	NACC	Audit	23 October to 03 November 2017
5	Bangladesh	APAC	ICVM	19 to 27 September 2017
6	Bosnia and Herzegovina	EUR/NAT	Off-site Validation	16 to 20 October 2017
7	Bulgaria	EUR/NAT	Off-site Validation	25 to 29 September 2017
8	Burkina Faso	WACAF	ICVM	24 to 31 October 2017
9	Chad	WACAF	Off-site Validation	11 July to 15 August 2017
10	Chile	SAM	ICVM	28 Mar to 04 April 2017
11	Chile	SAM	Off-site Validation	18 to 22 December 2017
12	Colombia	SAM	Audit	5 to 16 June 2017
13	Costa Rica	NACC	ICVM	14 to 21 February 2017
14	Djibouti	ESAF	Off-site SSC PQs Validation	14 to 17 November 2017
15	Dominican Republic	NACC	Off-site Validation	1 February to 31 March 2017
16	Equatorial Guinea	WACAF	Off-site Validation	11 to 30 January 2017
17	Equatorial Guinea	WACAF	ICVM	7 to 14 February 2017
18	Ethiopia	ESAF	Off-site Validation	4 to 08 December 2017
19	Fiji	APAC	Off-site Validation	1 June to 01 August 2017
20	Finland	EUR/NAT	ICVM	5 to 12 September 2017
21	France	EUR/NAT	ICVM	13 to 17 March 2017
22	Germany	EUR/NAT	Audit	19 to 30 June 2017
23	Honduras	NACC	Audit	21 August to 01 September 2017
24	India	APAC	Audit	6 to 16 November 2017
25	Indonesia	APAC	ICVM	10 to 18 October 2017
26	Italy	EUR/NAT	Off-site Validation	25 to 29 September 2017
27	Jordan	MID	ICVM	3 to 10 April 2017
28	Kuwait	MID	ICVM	13 to 20 November 2017
29	Lebanon	MID	Audit	16 to 27 October 2017
30	Mongolia	APAC	ICVM	29 August to 04 September 2017
31	Mozambique	ESAF	Off-site Validation	1 June to 01 August 2017
32	Mozambique	ESAF	Off-site Validation	11 to 15 September 2017
33	Nepal	APAC	ICVM	4 to 11 July 2017
34	Nicaragua	NACC	Off-site Validation	3 to 31 July 2017
35	Nicaragua	NACC	Off-site Validation	3 to 05 October 2017

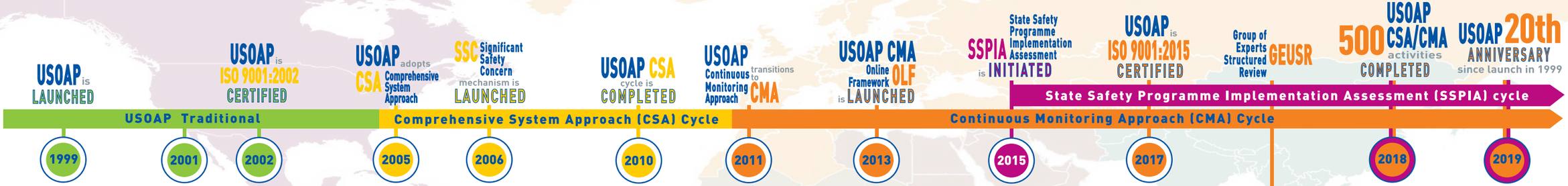
No.	State	ICAO Region	USOAP CMA Activity	Dates
36	Norway	EUR/NAT	Off-site Validation	11 to 15 September 2017
37	Panama	SAM	ICVM	19 to 28 September 2017
38	Philippines	APAC	ICVM	30 May to 08 June 2017
39	Philippines	APAC	Off-site Validation	13 June to 12 July 2017
40	Portugal	EUR/NAT	ICVM	12 to 19 December 2017
41	Romania	EUR/NAT	Off-site Validation	4 to 06 September 2017
42	Rwanda	ESAF	ICVM	1 August to 08 September 2017
43	Rwanda	ESAF	Off-site Validation	1 to 31 December 2017
44	Slovenia	EUR/NAT	Off-site Validation	16 to 20 October 2017
45	South Africa	ESAF	Audit	8 to 18 May 2017
46	South Africa	ESAF	Off-site Validation	14 November to 29 December 2017
47	Thailand	APAC	ICVM	20 to 27 September 2017
48	Trinidad and Tobago	NACC	ICVM	3 to 10 July 2017
49	Trinidad and Tobago	NACC	Off-site Validation	7 September to 10 November 2017
50	Turkey	EUR/NAT	Off-site Validation	6 to 10 March 2017
51	Ukraine	EUR/NAT	Audit	13 to 24 March 2017
52	United Republic of Tanzania	ESAF	ICVM	28 Mar to 06 April 2017
53	Uruguay	SAM	Off-site Validation	25 to 29 September 2017
54	Uzbekistan	EUR/NAT	Audit	10 to 21 April 2017

TABLE C-3. USOAP CMA activities conducted in 2018

No.	State	ICAO Region	USOAP CMA Activity	Dates
1	Azerbaijan	EUR/NAT	ICVM	2 to 11 July 2018
2	Bahrain	MID	ICVM	7 to 15 May 2018
3	Bhutan	APAC	ICVM	7 to 16 August 2018
4	Bolivia	SAM	Off-site MIR PQs Validation Activity	9 to 23 May 2018
5	Botswana	ESAF	Audit	14 to 24 May 2018
6	Brazil	SAM	Audit	19 to 27 March 2018
7	Bulgaria	EUR/NAT	Audit	16 to 26 April 2018
8	Cabo Verde	WACAF	ICVM	5 to 12 June 2018
9	Cambodia	APAC	Audit	10 to 21 December 2018
10	Democratic Republic of the Congo	WACAF	ICVM	6 to 19 November 2018
11	Denmark	EUR/NAT	Audit	6 to 13 February 2018
12	Estonia	EUR/NAT	Off-site Validation	16 April to 24 May 2018
13	Estonia	EUR/NAT	Off-site Validation	4 June to 31 July 2018
14	Ethiopia	ESAF	Off-site Validation	3 to 07 September 2018
15	Finland	EUR/NAT	Off-site Validation	31 January to 28 February 2018
16	Gambia	WACAF	Audit	16 to 26 July 2018
17	Georgia	EUR/NAT	ICVM	13 to 20 March 2018
18	Greece	EUR/NAT	Off-site Validation	14 to 18 May 2018
19	Guatemala	NACC	ICVM	30 January to 06 February 2018
20	Hungary	EUR/NAT	Off-site Validation	2 to 06 July 2018
21	India	APAC	ICVM	13 to 21 November 2018
22	Islamic Republic of Iran	MID	Audit	8 to 18 September 2018
23	Kenya	ESAF	Audit	2 to 12 July 2018
24	Lithuania	EUR/NAT	Off-site Validation	15 to 18 October 2018
25	Madagascar	ESAF	ICVM	9 to 16 January 2018
26	Malawi	ESAF	ICVM	3 to 07 December 2018
27	Malta	EUR/NAT	Off-site Validation	30 January to 28 February 2018
28	Malta	EUR/NAT	Off-site Validation	12 to 15 June 2018
29	Mauritania	WACAF	Audit	3 to 13 December 2018
30	Mozambique	ESAF	ICVM	17 to 24 September 2018
31	Myanmar	APAC	Audit	10 to 21 December 2018
32	Norway	EUR/NAT	ICVM	28 May to 01 June 2018
33	Papua New Guinea	APAC	ICVM	6 to 14 March 2018
34	Papua New Guinea	APAC	Off-site Validation	30 July to 31 August 2018
35	Peru	SAM	ICVM	7 to 14 August 2018

No.	State	ICAO Region	USOAP CMA Activity	Dates
36	Poland	EUR/NAT	Audit	24 September to 02 October 2018
37	Qatar	MID	Audit	11 to 22 November 2018
38	Senegal	WACAF	Off-site MIR PQs Validation Activity	10 to 31 August 2018
39	Seychelles	ESAF	ICVM	10 to 19 April 2018
40	Slovakia	EUR/NAT	Off-site Validation	1 October to 30 November 2018
41	Spain	EUR/NAT	Off-site Validation	4 July to 30 September 2018
42	Sri Lanka	APAC	Audit	4 to 15 June 2018

Celebrating 20 years of Universal Safety Oversight Audit Programme (1999 - 2019)



In response to concerns about the lack of, or insufficient, safety oversight of State civil aviation systems,USOAP is launched to conduct safety audits related to Annexes 1, 6 and 8 to the Convention on International Civil Aviation.

USOAP is expanded to include Annexes 11, 13 and 14 in the safety audits of States.

In the CSA cycle, USOAP covers all safety-related Annexes in the conduct of safety oversight audits.

The 37th Session of the ICAO Assembly recognizes "successful implementation of USOAP CSA" and its contribution to aviation safety.

The CMA cycle, USOAP "incorporates safety risk factors" analysis and is "applied on a universal basis to assess States' safety oversight capabilities". Calculation of Effective Implementation (EI) value is also modified.

This web-based platform features a suite of web-integrated applications enabling the continuous monitoring and reporting of safety-related information and documentation from different sources. Data migration from previous platform to the OLF is completed.

With the applicability on 14 November 2013 of Annex 19, ICAO initiates assessment of select States' SSP implementation.

GEUSR was established to "undertake a review of the USOAP CMA methodology, processes and tools" and "enable ICAO to plan improvements to the Programme".

USOAP CMA audit of the civil aviation safety oversight system of the Republic of Kenya was conducted in July and the final report published in December 2018.

WHO are USOAP?

108 **AUDITORS** and subject matter experts in:

- **PEL** Personnel licensing and training
- **OPS** Aircraft operations
- **AIR** Airworthiness of aircraft
- **AIG** Aircraft accident and incident investigation
- **ANS** Air navigation services
- **AGA** Aerodromes and ground aids

from HQ, Regional Offices and States

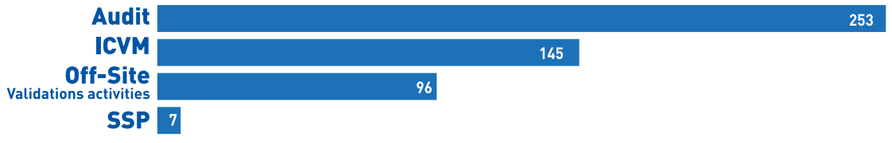
14 **HQ Support Staff**
Associates/Assistants in:

- Program
- Administrative
- Quality Assurance
- Training records and logistics
- Travel arrangements and logistcs
- Software developers
- Technical report production (English/French/Spanish)
- Audit documentation

Staff versed using ISO 9001: 2015
Certified Quality Programme

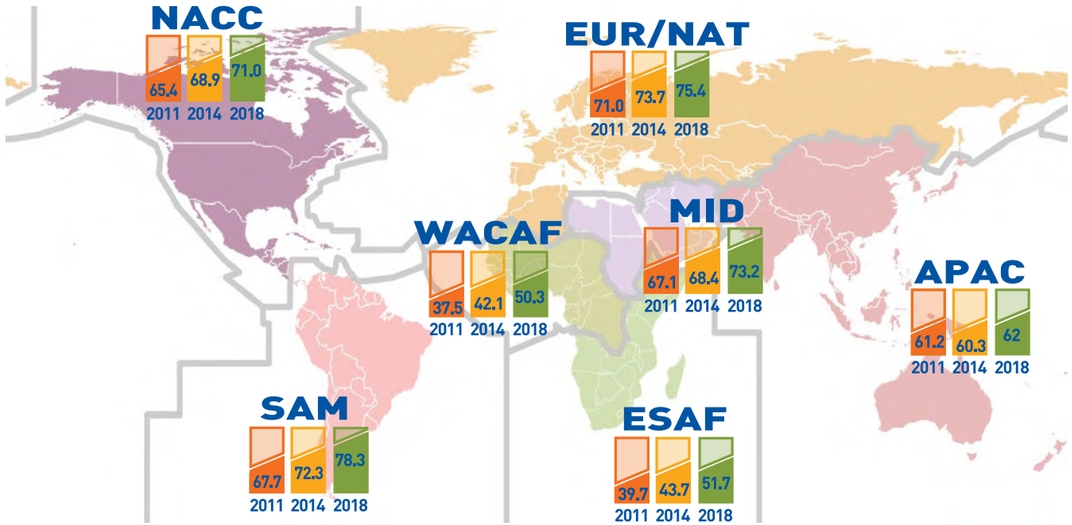
WHAT are the accomplishments?

501 **CSA+CMA completed activities since 2005**

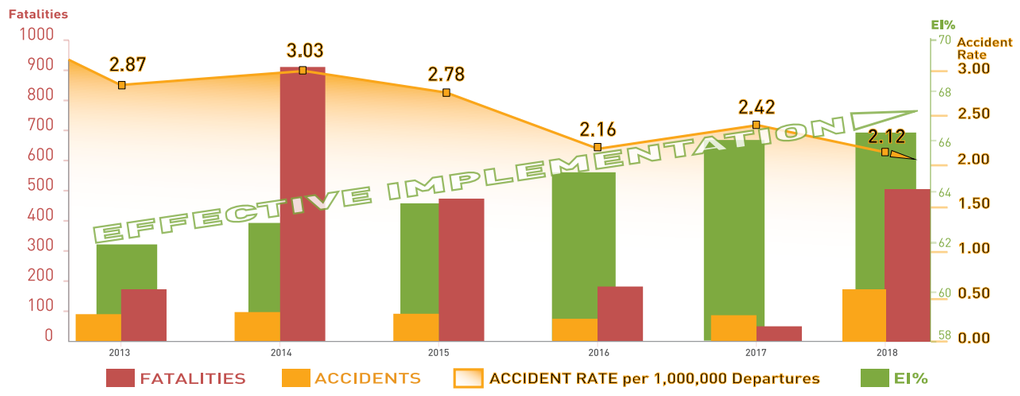


RESULTS USOAP outcomes?

Effective Implementation in ICAO Regions.
EI%s evolution in 2011, 2014 and 2018.



FATALITIES, ACCIDENTS, ACCIDENT RATE
per 1,000,000 departures and EFFECTIVE IMPLEMENTATION between 2013 and 2018 as of January 1st 2019



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