



**Agenda Item 2: Results of the meetings related to global plans**

**FOLLOW-UP TO THE RESULTS OF THE THIRTEENTH AIR NAVIGATION CONFERENCE  
OF ICAO**

(Presented by the Secretariat)

<b>SUMMARY</b>	
This working paper presents information on the results of the Thirteenth Air Navigation Conference (AN/Conf-13) held in ICAO Headquarters on 9-19 October this year.	
<b>References:</b>	
<ul style="list-style-type: none"><li>• State letter ST 14/1-17/120: Invitation to attend the Thirteenth Air Navigation Conference, Montreal (Canada) on 9-19 October 2018.</li><li>• Draft report of the Thirteenth Air Navigation Conference (AN-Conf-13).</li></ul>	
<b>ICAO strategic objectives:</b>	<i>A - Safety</i> <i>B – Capacity and efficiency</i>

**1. Introduction**

1.1 Through State letter ST 14/1-17/120, dated 15 December 2017, the Secretary General of ICAO invited States and organisations to the Thirteenth Air Navigation Conference, which was held in Montreal (Canada) on 9-19 October 2018.

1.2 The theme of the Conference was “*From development to implementation*”. The agenda included a broad range of topics related to flight safety and capacity and efficiency of air navigation of interest to the Directors General of civil aviation as well as to air navigation service providers and all airspace users.

1.3 The Conference provided member States and aviation stakeholders the opportunity to work towards the development of constantly evolving global strategies for the planning, development and implementation of safety and air navigation.

**2. Discussion and conclusions**

2.1 The Thirteenth Air Navigation Conference (AN-Conf/13) was held in Montreal, on 9-19 October of this year.

2.2 The Conference worked in two Committees (A and B). Committee A reviewed all issues related to air navigation, and Committee B all issues related to safety. **Appendix A** contains the agenda of the two committees.

2.3 The Conference was attended by 1213 delegates and observers of 116 member States and 37 international organisations, as well as by advisors, amongst other participants. The list of participants is posted on the AN-Conf/13 website, [www.icao.int/meetings/anconf13](http://www.icao.int/meetings/anconf13).

2.4 The Conference issued 52 recommendations. **Appendix B** contains the recommendations adopted by the meeting.

2.5 According to the information contained in Appendix B, the recommendations call for action to be taken by States and action to be taken by ICAO as a whole (Headquarters, Regional Offices, and PIRGs), in order to increase air navigation capacity and efficiency and, if possible, increase safety of air operations, and to define actions to address emerging air traffic management and safety challenges.

2.6 Upon reviewing the recommendations, the Meeting could formulate the following conclusion:

### **DRAFT CONCLUSION**

#### **RAAC/16-XX:**

#### **IMPLEMENTATION OF AN/CONF-13 RECOMMENDATIONS**

That, in order to implement and follow up on the recommendations issued by the AN/Conf-13, the RAAC/16 Meeting invites:

SAM States:

- a) to take the necessary steps to implement the actions recommended in the areas of air navigation and safety; and
- b) to cooperate with ICAO in the development of documents related to the GANP, GASP and other manuals in order to enrich such documents with regional requirements;

the Secretariat:

- c) to follow up on the action taken by the States within the framework of AN/Conf-13 recommendations;
- d) to take the necessary action to organise regional seminars as recommended by the AN/Conf-13 in the different areas of air navigation and safety;
- e) to provide technical assistance for the development of national plans and their alignment with regional plans, global plans, and the UN sustainable development goals; and
- f) to coordinate actions with the PIRG (GREPECAS) for the implementation of AN/Conf-13 recommendations.

### **3. Suggested action**

3.1 The Meeting is invited to:

- a) take note of the information and recommendations presented in this working paper, and in Appendices A and B;
- b) approve the draft conclusion contained in paragraph 2.6 if deemed appropriate; and
- c) consider any other actions it may deem appropriate.

**APPENDIX A**

**Thirteenth Air Navigation Conference**

**Agenda**

**Committees A and B**



**WORKING PAPER**

**THIRTEENTH AIR NAVIGATION CONFERENCE**

**Montréal, Canada, 9 to 19 October 2018**

**AGENDA FOR AN-CONF/13**

(Presented by the Secretariat)

**COMMITTEE A**

**Agenda Item 1: Air navigation global strategy**

- 1.1: Vision and overview of the sixth edition of the GANP
- 1.2: Air navigation performance improvement and measurement through the aviation system block upgrades (ASBUs) and basic building blocks (BBBs) framework
- 1.3: Air navigation roadmaps
- 1.4: Air navigation business cases

The Conference will be invited to put forward recommendations on:

- a) the vision, performance ambitions and overview proposed for the sixth edition of the GANP;
- b) the latest developments of the ASBUs framework;
- c) the BBBs framework; and
- d) the air navigation roadmaps and the methodology for development of business cases.

**Agenda Item 2: Enabling the global air navigation system**

- 2.1: Aerodrome operations and capacity
- 2.2: Integrated CNS and spectrum strategy
- 2.3: Future provision of aeronautical meteorological service

The Conference will be invited to put forward recommendations on:

- a) how to improve aerodrome operations and reinforce its relationship with the ATM environment, and a future strategy to increase aerodrome capacity enabling the enhancement of the whole system capacity through optimized airport planning and design and total airport management;
- b) an integrated CNS and spectrum strategy — the evolution and rationalization of the global CNS infrastructure, taking into account its impact on the air navigation system as a whole and increasing pressures on aeronautical frequency spectrum; and
- c) how MET services will be provided in the future.

**Agenda Item 3: Enhancing the global air navigation system**

- 3.1: System-wide information management (SWIM)
- 3.2: Flight and flow information for a collaborative environment (FF-ICE) and trajectory-based operations (TBO)
- 3.3: Air traffic flow management (ATFM)
- 3.4: Civil/military cooperation
- 3.5: Other ATM issues

The Conference will be invited to put forward recommendations on:

- a) a system to exchange data and information on a global basis which can support the evolution of the air navigation system towards trajectory-based operations;
- b) how ATFM can improve and evolve aiming a future trajectory-based operations;
- c) how to improve civil-military cooperation and collaboration for the benefit of both airspace users and to attend specific mission requirements; and
- d) other ATM issues that are necessary to enhance the performance of the air navigation system as a whole.

**Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)**

- 4.1: The economic benefits brought by aviation
- 4.2: Implementing BBBs and minimum service Standards
- 4.3: Implementing ASBUs for performance improvement
- 4.4: Implementing search and rescue (SAR) processes and procedures

The Conference will be invited to put forward recommendations on:

- a) how aviation can better contribute to a State's economic development;
- b) how PIRGs can improve contribution to regional development;
- c) facilitating implementation of BBBs services and ASBUs elements; and
- d) improving implementation of SAR processes and procedures.

**Agenda Item 5: Emerging issues**

- 5.1: Operations above Flight Level 600
- 5.2: Operations below 1000 feet
- 5.3: Remotely piloted aircraft system (RPAS)
- 5.4: Cyber resilience
- 5.5: Other emerging issues impacting the global air navigation system including unmanned aircraft systems (drones), and supersonic and commercial space operations

The Conference will be invited to put forward recommendations on:

- a) the process and procedures to improve the management of operations above FL600 and below 1000ft;
- b) the regulatory framework to enable the integration of RPAS in non-segregated airspace;
- c) cyber strategies to reduce system vulnerabilities; and
- d) any other emerging issues that may impact safety and regularity of the air navigation system.

**COMMITTEE B**

**Agenda Item 6: Organizational safety issues**

**6.1 Strategic plan**

- 6.1.1: Vision and overview of the Global Aviation Safety Plan (GASP), 2020-2022 edition
- 6.1.2: Enabling safety performance monitoring; goals, targets and indicators in the 2020-2022 edition of the GASP
- 6.1.3: Global Aviation Safety Oversight System (GASOS)

## **6.2 Implementation of safety management**

- 6.2.1: State safety programmes (SSPs)
- 6.2.2: Safety management systems
- 6.2.3: Developing safety intelligence

## **6.3 Monitoring and Oversight**

- 6.3.1: The evolution of the Universal Safety Oversight Audit Programme (USOAP) continuous monitoring approach (CMA)
- 6.3.2: Support and the USOAP CMA Online Framework (OLF)

The Conference will be invited to put forward recommendations on:

- a) the 2020-2022 edition of the GASP;
- b) plans for the evolution of the USOAP CMA;
- c) strategies to support the development of safety intelligence; and
- d) the proposed GASOS.

### **Agenda Item 7: Operational safety risks**

- 7.1: Facilitation of data-driven decision-making in support of safety intelligence to support safety risk management
- 7.2: Operational safety risks at the global, regional and national levels, and the role of RSOOs and RASGs in achieving the GASP goals
- 7.3: Other implementation issues

The Conference will be invited to put forward recommendations on:

- a) the sharing of data sources for developing safety intelligence in support of safety risk management;
- b) global, regional and national initiatives to address high risk categories (HRCs) of accidents; and
- c) other recognized operational safety issues.

### **Agenda Item 8: Emerging safety issues**

- 8.1: Measures to proactively address emerging issues;
- 8.2: Emerging safety issues

The Conference will be invited to put forward recommendations on:

- a) initiatives to proactively address emerging safety issues;
- b) global, regional and national initiatives to address emerging safety issues.

**RECOMMENDATIONS ADOPTED BY AN-CONF/13****Agenda item 1:****RECOMMENDATION 1.1/1 – VISION AND OVERVIEW OF THE SIXTH EDITION OF THE *GLOBAL AIR NAVIGATION PLAN* (DOC 9750, GANP)**

That States:

- a) agree that the future *Global Air Navigation Plan* (Doc 9750, GANP), based on the outcome of the Thirteenth Air Navigation Conference (AN-Conf/13), be available as a web-based platform, including a concise, executive summary (printable) which outlined its key policies, priorities and strategies to ensure that the GANP was easily accessible to all States and key decision makers;
- b) agree with the proposed multilayer structure for the Sixth Edition of the GANP;
- c) welcome the proposed vision, performance ambitions and conceptual roadmap for the Sixth Edition of the GANP, with the inclusion of the civil-military dimension;
- d) recognize the importance of a separate but aligned GANP and *Global Aviation Safety Plan* (Doc 10004, GASP).

That ICAO:

- e) consider the establishment of a GANP Study Group comprised of Member States from all regions and industry to undertake work on future editions of the GANP;
- f) make available the GANP global strategic level (printable) in the six ICAO languages;
- g) develop online training and organize regional seminars in conjunction with the planning and implementation regional groups (PIRGs), where possible, for the familiarization of the Sixth Edition of the GANP and support the deployment and implementation of regional and national air navigation plans;
- h) develop a national air navigation plan template available for voluntary use by States, as part of the Sixth Edition of the GANP, aligned with the global and regional air navigation plans and support States in developing their national air navigation plans while taking into consideration neighbouring requirements;
- i) strengthen the relationship between the GASP, the GANP and the newly developed Global Aviation Security Plan (GASeP); and
- j) continue to work with States, international organizations, air traffic management (ATM) modernization programmes and other stakeholders on the development of the Sixth Edition of the GANP, as required for subsequent endorsement at the 40th Session of the ICAO Assembly.

**RECOMMENDATION 1.2/1 - GLOBAL TECHNICAL LEVEL OF THE SIXTH EDITION OF THE GLOBAL AIR NAVIGATION PLAN (DOC 9750, GANP)**

That States:

- a) agree with the proposed change management process to maintain an up-to-date aviation system block upgrade (ASBU) framework with the formal involvement of the ASBU Panel Project Team (ASBU PPT) to improve transparency, consistency and stability;
- b) agree, in principle, with the updated ASBU framework and consider the initial version of the basic building block (BBB) framework;

That ICAO:

- c) map the global technical level of the *Global Air Navigation Plan* (Doc 9750, GANP) with the strategic level;
- d) make available the ASBU and BBB frameworks in an interactive and simplified format, as part of the web-based GANP Portal, emphasizing the relationship between both frameworks, and between the frameworks and the regional air navigation plan (ANP) elements;
- e) enable the capability, within the GANP Portal, to upload relevant information related to the development and deployment of the ASBU and proposed BBB frameworks in order to allow States, regions and industry to share information;
- f) incorporate a flexible framework for emerging air navigation concepts such as unmanned aircraft systems (UAS), UAS traffic management (UTM), Big Data and the aviation Internet, into future editions of the GANP;
- g) include a Global Aeronautical Distress and Safety System (GADSS) thread in the Sixth Edition of the GANP in line with ICAO provisions;
- h) design a thread for a Global Aviation Internet Network in the GANP, in coordination with aviation and non-aviation-related industries;
- i) emphasize and enhance a human-centric approach to system design and processes for change management;
- j) support the conduct of trials for new air navigation concepts as outlined in the ASBU framework within the GANP; and
- k) continue to work with States, international organizations, air traffic management (ATM) modernization programmes and other stakeholders on the development of the global technical level of the Sixth Edition of the GANP for subsequent endorsement at the 40th Session of the ICAO Assembly.

**RECOMMENDATION 1.3/1 - AIR NAVIGATION ROADMAPS**

That States:

- a) provide ICAO with timely information on their modernization plans and the equipage plans of airspace users.

That States and ICAO:

- b) work collaboratively to adopt a performance-based approach for developing performance requirements and acceptable means of compliance to support the implementation of the *Global Air Navigation Plan* (Doc 9750, GANP) while considering the need for global interoperability;

That ICAO:

- c) provide air navigation roadmaps, linked to the aviation system block upgrade (ASBU) elements, within the GANP which support:
  - 1) new airspace users and emerging technologies;
  - 2) greater flexibility where possible in the choice of technologies, based on performance needs; and
  - 3) earlier adoption of new technologies and operational capabilities as they emerge, linked to the performance needs;
- d) continue to explore practical means to make use of international standards, in particular through the Standards Roundtable work with recognized standards-making organizations, to expedite the efficient development of ICAO provisions; and
- e) expedite the work on the Global Data Link Implementation Strategy and develop harmonized solutions to support air-ground data link communications.

**RECOMMENDATION 1.4/1 - COST-BENEFIT ANALYSIS (CBA) IN SUPPORT OF ASSETS DEPLOYMENT**

That States:

- a) perform a cost-benefit analysis (CBA) as part of all required impact assessments, in coordination with air navigation services providers (ANSPs) and among other relevant stakeholders, when defining optimum solutions for improvements in the performance of the air navigation system through the use of the aviation system block upgrades (ASBU) framework;
- b) use a simplified mechanism, if they do not have a process already in place, such as the checklist available on the Global Air Navigation Plan (GANP) Portal, for CBA of air navigation infrastructure investment projects to support improvements as described in the ASBU framework; and

That ICAO:

- c) support the implementation of applicable CBA methodologies through dedicated workshops.

**Agenda Item 2:****RECOMMENDATION 2.1/1 - AERODROME CAPACITY AND EFFICIENCY ENHANCEMENT**

That States:

- a) review, as needed, all options to increase aerodrome capacity, including increasing the efficiency of existing aerodrome infrastructure, reviewing the need for investment in new infrastructure and mitigating restrictions in surrounding airspace;
- b) establish a plan for the certification of aerodromes under their jurisdiction, in accordance with their national regulations, incorporating the identification of gaps and implementation of solutions to overcome those gaps, including the assessment and development of mitigation measures in areas of non-compliance.

That ICAO:

- c) progress the work on the development of provisions related to aerodrome design and operations in support of aerodrome capacity and efficiency enhancement;
- d) explore new areas for enhancing aerodrome capacity and efficiency, including total airport management (TAM), reduced separation standards, joint civil-military aerodromes and other new initiatives and technologies such as folding wing tip (FWT);
- e) continue to provide assistance to States in the area of aerodrome certification; and
- f) monitor developments such as New Experience Travel Technologies (NEXTT) and consider the formulation of provisions, where necessary, to support its implementation.

**RECOMMENDATION 2.1/2 - TOTAL AIRPORT MANAGEMENT (TAM) AND AIRPORT THROUGHPUT**

That States:

- a) implement airport collaborative decision-making (A-CDM) and, when appropriate, extend A-CDM to incorporate total airport management (TAM).

That ICAO:

- b) update provisions and guidance on A-CDM by extending it to TAM with greater integration with air traffic flow management (ATFM);
- c) update provisions on wake turbulence and time-based separation; and
- d) update provisions on reduced runway separation minima.

**RECOMMENDATION 2.2/1 - LONG-TERM EVOLUTION OF COMMUNICATION, NAVIGATION AND SURVEILLANCE SYSTEMS AND FREQUENCY SPECTRUM ACCESS**

That States:

- a) engage in the spectrum regulatory process to ensure the continued necessary access to and protection of safety-critical aeronautical communications, navigation, and surveillance (CNS) systems;
- b) ensure through the implementation of a safety oversight programme that the designated competent authorities are involved in safety case assessments of the radio frequency environment so as to adequately protect the operational availability of aeronautical CNS systems.

That ICAO:

- c) launch a study, built on a multi-disciplinary view of the C, N and S elements and frequency spectrum, to evolve the required CNS and frequency spectrum access strategy and systems roadmap in the short, medium and long term, in a performance-based and service-oriented manner, to ensure that CNS systems remain efficient users of the spectrum resource; and
- d) develop provisions, in collaboration with States and regional modernization programmes, to support increased civil-military interoperability and synergies with the optimum reutilization opportunities from State and military aviation technologies and to take advantage of opportunities arising from new entrants, such as unmanned aircraft systems (UAS) and suborbital vehicles.

**RECOMMENDATION 2.2/2 - GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) EVOLUTION**

That States:

- a) when defining their air navigation strategic plans, take advantage of the improved robustness and performance offered by dual-frequency, multi constellation (DFMC) global navigation satellite system (GNSS) to deliver incremental operational benefits and encourage related industry developments;
- b) avoid, in principle, prohibiting the use of available GNSS elements if they perform according to ICAO Standards and Recommended Practices (SARPs) and can meet all safety and regulatory requirements for the intended operations;
- c) avoid mandating equipage or use of any particular GNSS core constellation or augmentation system unless clear operational benefits are offered in return and appropriate consultations have been made with the relevant airspace users;
- d) ensure implementation of ICAO provisions for publication of information related to the use of GNSS elements in aeronautical information publications (AIP);
- e) take timely action to meet the long-term goal whereby every State accepts for lateral navigation use all GNSS elements that are compliant with SARPs, thus creating a positive environment for DFMC GNSS.

That ICAO:

- f) continue the development of SARPs and guidance material for existing and future GNSS elements in coordination with recognized standards-making organizations;

- g) further develop provisions intended for States and organizations that provide GNSS services regarding publication of service performance standards, regular performance assessment and timely notification of events that may affect the service; and
- h) develop additional guidance addressing technical and regulatory aspects to assist States in their acceptance and use of existing and future GNSS elements.

### **RECOMMENDATION 2.3/1 - FUTURE PROVISION OF AERONAUTICAL METEOROLOGICAL SERVICE**

That States:

- a) and international user organizations ensure that adequate expert capacity is applied in the collaborative management and development of aeronautical meteorological services for international air navigation;

That ICAO:

- b) ensure it has sufficient capacity and expertise to progress the work on the development of provisions related to aeronautical meteorology, including the foreseen impact on international air navigation due to climate change, to be described in the Sixth Edition of the *Global Air Navigation Plan* (Doc 9750, GANP); and
- c) develop implementation assistance, including guidance material, for space weather information service, the provision of globally-consistent, phenomena-based hazardous meteorological information, the meteorological component of system-wide information management (SWIM), cost-recovery solutions for regional and global systems, and potential new initiatives to address issues such as the impact of climate change on aviation, including provision of meteorological services to the air traffic management (ATM) community in the context of increased tropical convective systems.

### **RECOMMENDATION 2.3/2 - FURTHER DEVELOPMENT OF IWXXM FOR THE EXCHANGE OF AERONAUTICAL METEOROLOGICAL INFORMATION**

That States:

- a) provide ICAO with their ICAO Meteorological Information Exchange Model (IWXXM) implementation plans before 2020.

That ICAO:

- b) promote the importance of exchanging meteorological information for aeronautical purposes in compliance with the IWXXM;
- c) in close coordination with the World Meteorological Organization (WMO):
  - 1) ensure that the IWXXM format is the only standard exchange format by 2026;
  - 2) develop the policies and procedures necessary to ensure a smooth transition from traditional alpha numeric code (TAC) format to IWXXM format for the purpose of data exchange to support international air navigation, as an interim step toward full IWXXM implementation;
  - 3) promote awareness of the changes brought about by the IWXXM data format, production, dissemination and data exchange among operators; and

- 4) monitor the status of implementation of IWXXM at State and regional levels.

**RECOMMENDATION 2.3/3 - PROVISION OF SPACE WEATHER INFORMATION SERVICE MEETING THE OPERATIONAL NEEDS OF USERS**

That States:

- a) encourage the research of operational impacts of space weather phenomena on civil aviation using performance-based approaches and establish requirements for the use of space weather information for civil aviation.

That ICAO:

- b) continue to facilitate coordination between the space weather information service providers and aeronautical users to clarify the needs and solutions for improved safety and efficiency of civil aviation through the provision of space weather information and training on the use of the information; and
- c) coordinate with other international organizations, such as the International Telecommunication Union - Radio communication Sector (ITU-R) and the World Meteorological Organization (WMO), to facilitate research of operational impacts of space weather phenomena on civil aviation using performance-based approaches and develop requirements and/or guidance for the use of space weather information for civil aviation.

**RECOMMENDATION 2.3/4 - DEVELOPMENT OF COST-RECOVERY MECHANISMS FOR THE PROVISION OF AERONAUTICAL METEOROLOGICAL INFORMATION**

That ICAO:

- a) support the need to expeditiously identify how aeronautical meteorological service provision has changed, how it will continue to evolve, and how these changes (including those arising from the impact of climate change on aviation) may affect the recovery of relevant costs associated with service provision on a global, multi-regional, regional, and sub-regional basis; and
- b) in close coordination with the World Meteorological Organization (WMO):
- 1) review deficiencies in the current cost-recovery systems;
  - 2) identify new cost-recovery challenges that have arisen (taking into consideration the issues described in a) above); and
  - 3) identify possible mechanisms to recover these costs in a manner consistent with *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082).

**Agenda Item 3:****RECOMMENDATION 3.1/1 - SYSTEM-WIDE INFORMATION MANAGEMENT (SWIM)**

That States:

- a) support developments and implementation of system-wide information management;
- b) via the mechanism of the planning and implementation regional groups (PIRGs), showcase regional system-wide information management (SWIM) demonstrations, highlighting the operational and economic benefits of SWIM, and evaluate possible transition and mixed-mode scenarios;
- c) share information, lessons learned and observations regarding SWIM development and implementation;
- d) develop national implementation plans in alignment with regional strategies and priorities and in accordance with the strategy outlined in the *Global Air Navigation Plan* (Doc 9750, GANP) which would include SWIM.

That ICAO:

- e) while making use of already developed Standards and best practices, continue the development of provisions related to information services, while including relevant guidance, governance aspects, information content and related information exchange models, and supporting technical infrastructure and governance for SWIM in sufficient detail to ensure safe, efficient and secure globally seamless operations;
- f) consider the concept of a global SWIM framework as part of the GANP and the aviation system block upgrades (ASBUs);
- g) consider security-by-design principles when developing interconnected trusted global SWIM frameworks;
- h) develop provisions related to the harmonization of information exchange models and globally interconnected registries;
- i) through regional events, and in collaboration with States and industry, promote SWIM and its benefits, as described in the *Manual on System-wide Information Management* (Doc 10039), as well as implementation best practices to the aviation community; and
- j) provide assistance to States to support the implementation of Annex 15 - *Aeronautical Information Services and Procedures for Air Navigation Services - Aeronautical Information Management* (Doc 10066, PANS-AIM).

**RECOMMENDATION 3.2/1 -TRAJECTORY-BASED OPERATIONS (TBO)**

That States, along with stakeholders:

- a) continue to provide ICAO with the developments and lessons learned from air traffic management (ATM) modernization programmes;

- b) work through ICAO to identify and address, not only potential issues, but also opportunities such as the improved management of global traffic flows through a global network-centric approach to ensure the successful development and implementation of trajectory-based operations (TBO);
- c) through the mechanism of the planning and implementation regional groups (PIRGs), integrate current implementation efforts with regional transition plans for flight and flow information for a collaborative environment (FF-ICE), system-wide information management (SWIM) and TBO.

That ICAO:

- d) finalize the global TBO concept and its elements in the Sixth edition of the *Global Air Navigation Plan* (Doc 9750, GANP) and the aviation systems block upgrade (ASBU) framework; and
- e) develop guidance on transitioning to a globally interoperable TBO environment in the context of on-going ATM initiatives while addressing all domains of ATM systems and taking into consideration existing and new types of airspace users.

**RECOMMENDATION 3.2/2 - FLIGHT AND FLOW INFORMATION FOR A COLLABORATIVE ENVIRONMENT (FF-ICE)**

That States, along with stakeholders:

- a) work through ICAO to finalize ICAO provisions and guidance material, in support of the initial implementation of flight and flow information for a collaborative environment (FF-ICE) by providing the results of operational and technical performance validation and cost-benefit analysis (CBA);

That ICAO:

- b) develop a robust transition strategy to minimize any potential negative impacts during the mixed mode operations of current ICAO flight plan processing and FF-ICE; and
- c) continue its work concerning the investigation of necessary information exchange content and supporting processes for the next evolution of FF-ICE.

**RECOMMENDATION 3.3/1 - NETWORK OPERATIONS (NOPS)**

That States:

- a) implement collaborative decision-making (CDM) processes in support of effective airspace management in the provision of air navigation services, including cross-border operations and resource management;
- b) plan and implement, according to their operational needs, operational improvements related to network operations in a coordinated manner within and across regions.

That ICAO:

- c) develop further provisions and guidance material on air traffic flow management (ATFM), supporting a global collaborative network management in support of trajectory-based operations (TBO); and
- d) support, through its Regional Offices, the sharing of best practices and the advancement of technical cooperation agreements between States in order to implement ATFM.

**RECOMMENDATION 3.4/1 - CIVIL-MILITARY COLLABORATION**

That States:

- a) actively collaborate with their military authorities, including at the regional level, and encourage greater civil-military interoperability and appropriate use of performance equivalence;
- b) continuously inform their military authorities of the improvements to air navigation capacity and efficiency, safety, cyber threats and system resilience put forth by ICAO and advocate collaboration with ICAO at the global and regional levels;

That ICAO:

- c) identify potential opportunities for civil-military collaboration, develop a mechanism to collaborate with the military community early in the development of global provisions and guidance, and establish guidance for collaboration with the military community at global and regional levels;
- d) incorporate the military dimension, including civil-military cooperation and collaboration, in future editions of the *Global Air Navigation Plan* (Doc 9750, GANP);
- e) consider, with urgency and in collaboration with the military community, the interoperability and governance principles for the military community in system-wide information management (SWIM) and in the development of the ICAO trust framework; and
- f) consider, where possible, the inclusion of civil-military cooperation and collaboration subjects at ICAO events, and highlight the participation of military authorities in relevant State letter invitations.

**RECOMMENDATION 3.4/2 - CIVIL-MILITARY COOPERATION IMPLEMENTATION**

That States:

- a) encourage their military authorities to cooperate and coordinate with civil aviation authorities and air navigation services providers (ANSPs) on airspace use, including airspace access requirements, to achieve the most efficient use of airspace based on actual needs and, when possible, avoid permanent airspace segregation;

That ICAO:

- b) promote civil-military coordination and cooperation of best practices, and provide forums and other opportunities, such as regional symposiums, for States to exchange best practices; and
- c) explore opportunities to provide guidance to enhance safety at joint civil-military aerodromes and to assist States in the promulgation of clear procedures for airspace access requirements.

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**RECOMMENDATION 3.5/1 - ICAO LOCATION INDICATOR SYSTEM AND DATABASE OF SIGNIFICANT POINTS**

That States and industry stakeholders:

- a) urgently complete the population of the ICAO International Codes and Routes Designators (ICARD) database with all five-letter name codes (5LNC) used worldwide to ensure the accuracy of the database;
- b) ensure that whenever a 5LNC that is used for military purposes is published in an ICAO Aeronautical Information Publication (AIP) and consequently coded into aircraft flight management system (FMS), such 5LNCs are coordinated through the ICARD process.

That ICAO:

- c) continue to address the limitations of both location indicator and 5LNC availabilities in the short-term and determine a long-term solution;
- d) consider, when developing such solutions, the need for global harmonization and interoperability;
- e) continue with its efforts to improve awareness and training on the use of ICARD in the regions that do not actively use ICARD;
- f) continue to work towards removing duplicated 5LNCs and sound-like conflicts; and
- g) implement improvements to the ICARD database functionality, including the use of maps depicting flight information regions (FIRs), more information regarding 5LNC history and sound-like proximity checks for codes held in reserve but not yet allocated to a region.

**RECOMMENDATION 3.5/2 - COORDINATED CRISIS MANAGEMENT**

That States:

- a) along with industry stakeholders, engage in an active and coordinated manner when dealing with crisis management, enhanced preparedness for disasters, contingency planning and post crisis reviews; and

That ICAO:

- b) develop guidance on a coordinated approach to crisis management, including subjects such as business continuity, the role of air traffic flow management (ATFM) in support of crisis management and the importance of post crisis reviews.

**RECOMMENDATION 3.5/3 - CERTIFICATION OF ANSPS**

That ICAO investigate the potential benefits, balanced against the associated costs of the development of provisions and guidance material for certification of air navigation services providers (ANSPs).

**RECOMMENDATION 3.5/4 - TRUE NORTH**

That ICAO conduct a detailed study into the technical, operational, and economic feasibility of changing to a "True North" reference system.

**Agenda Item 4:****RECOMMENDATION 4.1/1 - STATE NATIONAL DEVELOPMENT PLANS**

That States:

- a) establish a defined connection between their air navigation and safety plans, as well as other relevant national plans;
- b) include clear references to the United Nations Sustainable Development Goals (UN SDGs) in their air navigation and safety plans, as well as in other relevant national plans, with the objective of showcasing the contribution of aviation to the UN SDGs and national economies.

That ICAO:

- c) engage with States to promote the importance of aviation development, taking into consideration environmental and socio-economic aspects, and to include aviation within their relevant national plans, and as necessary, national budgeting, which might be vital to unlocking funding for aviation needs; and
- d) develop guidance for States to include aviation within their relevant national plans taking into consideration global and regional planning.

**RECOMMENDATION 4.2/1 - IMPLEMENTATION OF MINIMUM AIR NAVIGATION SERVICES**

That States:

- a) consider the use of more advanced technologies and procedures, in coordination with international organizations and industry stakeholders, to provide the minimum air navigation services for international civil aviation, taking into account the principles of global interoperability and performance specification compliance;
- b) include planning for the implementation of the basic services outlined in the basic building blocks (BBB) framework within their national air navigation plans.

That ICAO:

- c) in coordination with the planning and implementation regional groups (PIRGs) and by making use of existing reporting mechanisms, verify the provision of the minimum air navigation services for international civil aviation, as outlined in the BBB framework, through the methodology for the identification of air navigation deficiencies against the regional air navigation plans;
- d) develop the necessary tools to support the PIRGs in the verification of the provision of the basic building block (BBB) services at the regional and national levels;
- e) coordinate the interoperability of systems and harmonization of procedures at a regional level, through the PIRGs, in relation to the use of advanced technologies and concepts of operations, taking into account global requirements;
- f) in line with the No Country Left Behind (NCLB) initiative, provide the necessary technical assistance to States for the provision of basic air navigation services as identified by the PIRGs and as reflected in State national air navigation plans; and

- g) urge the aviation manufacturing industry to create a testing environment for States to justify procurement decisions which guaranty interoperability and system functionality within local specific environments, as a follow-up to the provision of basic air navigation services.

**RECOMMENDATION 4.3/1 - IMPROVING THE PERFORMANCE OF THE AIR NAVIGATION SYSTEM**

That States:

- a) adopt and adapt as needed, the six-step performance management process for the planning and implementation of air navigation improvements and reflect this process in their national air navigation plans;
- b) align their national air navigation plans with regional plans to attain a globally harmonized performance management process and support the achievement of global performance objectives;
- c) support ICAO in promoting the No Country Left Behind (NCLB) initiative and reaffirm their commitment to the development of timely and accurate national air navigation plans aligned with regional and global plans.

That ICAO:

- d) encourage the planning and implementation regional groups (PIRGs) to embrace a performance-based approach for implementation and adopt the six-step performance management process, as described in the *Manual on Global Performance of the Air Navigation System* (Doc 9883), by reflecting the process in Volume III of all regional air navigation plans;
- e) continue to expedite the work on performance indicators related to the *Global Air Navigation Plan* (Doc 9750, GANP), including review of the work by an appropriate group of performance experts and consider establishing such an expert group under the Global Air Navigation Plan (GANP) Study Group; and
- f) examine possible operational incentives in the development of new air traffic management (ATM) concepts.

**RECOMMENDATION 4.3/2 - REGIONAL AND NATIONAL COLLABORATION AND IMPLEMENTATION INITIATIVES**

That States:

- a) adhere to the implementation commitments agreed at the regional level, and reflected in the regional air navigation plans, in order to effectively deploy regional initiatives;
- b) cooperate among themselves and with the industry to strengthen State implementation provisions within the framework of the No Country Left Behind (NCLB) initiative;
- c) plan the modernization of their air navigation system together with all stakeholders, based on local needs and available resources, taking into account regional and global commitments;
- d) recognize the important contribution being provided by the Africa-Indian Ocean (AFI) Plan towards the implementation of an effective regional framework for the African Air Navigation Services Provider (ANSP) Peer Review Programme to enhance the safety and efficiency of air transport operations in Africa;

- e) support the implementation of ICAO initiatives to improve the efficiency and effectiveness of regional processes;
- f) encourage the participation of high level authorities in the decision-making process for planning and implementation.

That ICAO:

- g) encourage States, regions and international organizations to support cross-border, interregional and intra-regional collaborative planning, activities and projects, supporting effective, efficient and expeditious harmonization;
- h) continue to provide support to the African air navigation services provider (ANSP) Peer Review Programme;
- i) urge States, in coordination with the industry, to support the implementation of regional priorities;
- j) support the implementation of an action plan for the development of aviation infrastructure in Africa under the Comprehensive Regional Implementation for Aviation Safety in Africa (AFI Plan);
- k) encourage States and organizations to continue sharing surveillance data to improve safety and efficiency in air traffic management;
- l) encourage regional collaboration and coordination as well as the use of incentives when planning the implementation of operational improvements to enable all stakeholders to achieve the benefits expected from the implementation; and
- m) encourage African States and industry to continue to work together within the African Flight Procedure Programme (AFPP).

#### **RECOMMENDATION 4.4/1 - SEARCH AND RESCUE (SAR) AND THE GLOBAL AERONAUTICAL DISTRESS AND SAFETY SYSTEM (GADSS)**

That States:

- a) through the planning and implementation regional groups (PIRGs), examine the possibilities of combining their respective capabilities to improve search and rescue (SAR) effectiveness;
- b) take advantage of the PIRGS to actively promote the establishment of bilateral or multilateral SAR agreements;
- c) support regional initiatives to implement SAR by organizing high level conferences in coordination with ICAO, industry and international partners.

That ICAO:

- d) complete the development of Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) provisions related to GADSS, as necessary, and support their implementation;
- e) organize regional SAR seminars and/or workshops to facilitate implementation of the Global Aeronautical Distress and Safety System (GADSS);

- f) emphasize to States the importance of implementing Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) provisions which support GADSS, related to aircraft tracking and to the location of an aeroplane in distress;
- g) invite the appropriate expert groups to provide advice on the implementation of GADSS;
- h) review the need for a requirement for a performance-based Standard to accurately determine the location of the end of flight, particularly over terrain, in the scope of efficient SAR operations; and
- i) include the general organization of SAR in future editions of the GANP.

**Agenda Item 5:**

**RECOMMENDATION 5.1/1 - OPERATIONS ABOVE FLIGHT LEVEL 600**

That States:

- a) with relevant experience in higher airspace operations, share, through ICAO where appropriate, their experience and expertise with other States and provide assistance to other States on the regulatory aspects of these operations;
- b) expected to benefit from higher airspace operations, agree to consider risk-based operational trials in their airspace.

That ICAO:

- c) support ongoing higher airspace operations by providing guidance and, as necessary, other provisions on the regulatory aspects of these operations;
- d) work with States and industry to share information on current and forecasted needs for higher airspace operations, to identify issues affecting the global air navigation system and to proactively address harmonization for these operations;
- e) consider establishing a multidisciplinary group of experts to consider needed criteria, operational issues, and operator and provider responsibilities for operations in higher airspace;
- f) develop a performance-based global framework for higher airspace operations considering current and future work in emerging technologies, for example, in the areas of information management and sharing, strategic planning, separation and environmental Standards, situational awareness and security; and
- g) ensure that the framework includes flights transitioning through controlled airspace and to and through airspace above FL600, as necessary.

**RECOMMENDATION 5.2/1 - VERY LOW ALTITUDE OPERATIONS**

That States:

- a) collect and share information regarding very low altitude operations, including on unmanned aircraft systems traffic management (UTM) systems, autonomous operations initiatives and tactical risk assessment models;
- b) ensure that UTM systems are interoperable with existing air traffic management (ATM) systems.

That ICAO:

- c) contribute to the development of operational solutions and guidance, including on UTM systems, autonomous operations and tactical risk assessment models, to support the safe and coordinated implementation of aviation activities at very low altitude, particularly in urban and suburban environments, including in the vicinity of, and into, aerodromes;
- d) continue serving as the global and regional facilitator and forum for States, industry, academia and other interested stakeholders in the development of UTM systems, including developing guidance for the identification, structuring and implementation of necessary financing mechanisms such as public-private partnerships (PPPs);
- e) continue developing provisions and guidance material for the development, harmonization and implementation of UAS regulations, consistent with the key policy principles set forth in the Global Air Navigation Plan (GANP);
- f) develop a solution to enable States to authorize operations of non-certificated UAS over the high seas, using parameters to be defined in a transparent manner, including investigating the maximum altitude at which these operations would be allowed;
- g) develop Standards and Recommended Practices (SARPs), guidance or “best practices” related to UTM, including autonomous operations, after States and regions have had sufficient time to test and validate concepts;
- h) encourage UTM providers to implement the highest level of cyber security standards that are consistent with aviation community expectations and guidelines for very low altitude airspace operations;
- i) support and coordinate the implementation of core airspace management services including, but not limited to, geofencing and geo-referencing, as well as ensuring ATM and UTM interfaces;
- j) actively cooperate with States at the regional level for the development and implementation of UTM;
- k) continue the development of a global aircraft registration network (ARN); and
- l) continue conducting awareness and educational activities amongst users, and facilitate the exchange of information amongst States regarding their UAS regulations.

**RECOMMENDATION 5.3/1 - REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)**

That States:

- a) collect and share information on remotely piloted aircraft systems (RPAS) operations;
- b) actively engage industry stakeholders to collect and provide technical data to ICAO on RPAS operations needed to support the development of SARPs for RPAS, including data required for detect and avoid (DAA) and C2 Link;
- c) support the cross-disciplinary development of RPAS-related SARPs and guidance material across expert groups of ICAO.

That ICAO:

- d) continue development of the regulatory framework necessary to support the integration of RPAS into non-segregated airspace and aerodromes, and facilitate related implementation roll-out activities;
- e) continue developing guidance material to support safe RPAS operations, to facilitate implementation through regional training activities, to conduct awareness and educational activities amongst users, and to facilitate the collection and sharing of information amongst States regarding their RPAS operations and regulations;
- f) assess the work underway in its expert groups and identify additional activities required to implement RPAS-related SARPs and guidance such as DAA and C2 Link;
- g) provide an update on a fully integrated approach for ICAO's RPAS-related work programme to the 40th Session of the Assembly in 2019;
- h) in coordination with States and military stakeholders, propose the best selection for the establishment of a secondary surveillance radar (SSR) code for lost C2 Link events within appropriate Annexes, Procedures for Air Navigation Services (PANS), regional air navigation plans and other relevant documents; and
- i) consider the use of gender-neutral RPAS-related terminology, following appropriate research.

**RECOMMENDATION 5.4/1 – CYBER RESILIENCE**

That States:

- a) in coordination with stakeholders, provide the necessary support for ICAO to evolve the global trust framework as an enabler of flight operations in a digitally connected environment;
- b) recognize that the cyber resilience of the aviation system depends on continued coordination amongst all relevant aviation and non-aviation stakeholders;
- c) recognize the need to be prepared to respond to cyber events;
- d) in coordination with industry and international organizations, work with ICAO to increase awareness of cyber threats and system resilience processes, and coordinate cyber-related incident information sharing and training activities;
- e) recognize the need to share information related to cyber events with other States and international organizations through appropriately designated channels.

That ICAO:

- f) establish a formal project involving States, international organizations and relevant stakeholders for the urgent and transparent development of a globally harmonized aviation trust framework through a group of experts. Priority should be given to governance principles;
- g) coordinate with both aviation and non-aviation technical experts in the development of the trust framework, and in particular with the governing bodies of the Internet;
- h) incorporate the trust framework into the *Global Air Navigation Plan* (Doc 9750) in an appropriate manner to highlight its urgent need, its importance and to improve its visibility;
- i) develop, as a matter of priority, and promote high-level policies and management frameworks for cyber resilience to help mitigate cyber threats and risks to civil aviation based on international industry standards and preferably aligned or integrated with existing management systems;
- j) recognize the need for the aviation community to be prepared for and be able to respond to cyber events;
- k) encourage States and international organizations to facilitate information sharing through appropriately designated channels at the global and regional levels;
- l) promote multidisciplinary State and relevant aviation and non-aviation stakeholders collaboration on cyber information sharing;
- m) promote tabletop exercises and maintain a repository of lessons learned and scenarios available to Member States; and
- n) promote a unified framework for an integrated risk management approach to cyber resilience, taking into account all hazards and threats to the air navigation system.

#### **RECOMMENDATION 5.5/1 - SUPERSONIC TRANSPORT (SST)**

That States:

- a) monitor the developments related to the re-emergence of the supersonic transport (SST) sector and, when necessary, engage their regulatory mechanisms to ensure that the necessary policies are in place before supersonic operations become routine.

That ICAO:

- b) note the developments related to the re-emergence of the SST sector, including the work related to Appendix G of Assembly Resolution A39-1, *Consolidated statement of continuing ICAO policies and practices related to environmental protection — General provisions, noise and local air quality*; and
- c) monitor the developments and, when necessary, engage regulatory mechanisms to ensure that the necessary policies are in place before supersonic operations become routine.

**RECOMMENDATION 5.5/2 - COMMERCIAL SPACE TRANSPORT (CST)**

In recognizing the issues related to commercial space transport (CST) operations potentially affecting international civil aviation, including the safe accommodation of CST operations in airspace and the joint use of aerodromes and other aviation infrastructure:

That States:

- a) and industry support ICAO activities in the CST field through the sharing of relevant expertise;
- b) share guidance material, best practices and national provisions related to commercial space operations through controlled airspace, including risk models and the application of relevant safety management principles.

That ICAO:

- c) coordinate its work related to CST operations with the United Nations Office for Outer Space Affairs; and
- d) establish a means to facilitate the sharing of information as applicable to the interaction between aviation and commercial space transport.

**RECOMMENDATION 5.5/3 - STANDARD-MAKING PROCESSES**

ICAO should review and enhance its Standard-making processes in order to meet the requirements of the rapid pace of technological developments.

**Agenda Item 6:****RECOMMENDATION 6.1/1 - DRAFT 2020-2022 EDITION OF THE GLOBAL AVIATION SAFETY PLAN (DOC 10004, GASP)**

That States:

- a) agree in principle with the draft 2020-2022 edition of the *Global Aviation Safety Plan* (GASP, Doc 10004), with the inclusion of GASP goals and targets; and

That ICAO:

- b) take into consideration input from the Conference, the questionnaire and the future work of the GASP Study Group for subsequent endorsement of the 2020-2022 edition of the GASP at the 40th Session of the ICAO Assembly.

**RECOMMENDATION 6.1.3/1 - THE GLOBAL AVIATION SAFETY OVERSIGHT SYSTEM (GASOS)**

That States:

- a) support the development of a global aviation safety oversight system (GASOS).

That ICAO:

- b) continue developing an ICAO GASOS comprised of voluntary and standardized competency assessments of safety oversight organizations for recognition of safety oversight functions provided to States, including its legal framework and assessment mechanisms while ensuring those States maintain their obligations and responsibilities under the *Convention on International Civil Aviation* (Doc 7300);
- c) develop appropriate guidance for States to support the delegation of safety oversight functions and monitoring of safety oversight organizations accepting delegations;
- d) design adequate interfaces between GASOS and other ICAO programmes and to avoid duplication of activities between GASOS and the Universal Safety Oversight Audit Programme Continuous Monitoring Approach (USOAP CMA);
- e) present GASOS for endorsement at the 40th Session of the ICAO Assembly if the liability, governance and cost-benefit analysis issues and other concerns raised by the Committee have been addressed; and
- f) encourage safety oversight organizations, including regional safety oversight organizations (RSOOs), State civil aviation authorities (CAAs) and other regional State-based mechanisms, to participate in GASOS in order to expand and enhance the safety oversight support provided to States.

**RECOMMENDATION 6.2/1 - SUPPORTING EFFECTIVE SAFETY MANAGEMENT IMPLEMENTATION**

That States and international organizations:

- a) identify focal points for the submission of practical examples and tools to be reviewed, validated and posted on the ICAO safety management implementation (SMI) website as a means of sharing successful experiences with the aviation community;
- b) support the ICAO SMI website by providing practical examples of their respective safety management practices, methodologies and tools for the purpose of sharing with other Member States.

That ICAO:

- c) commit to the ongoing development, promotion and maintenance of the safety management implementation (SMI) website in order to ensure active use of the tool and relevance of content to the aviation community;
- d) devise strategies to support the submission and validation of practical examples for the SMI website in the six ICAO working languages (English, Arabic, Chinese, French, Spanish, and Russian ) and ensure the translation of the content posted on the website into the six ICAO working languages;
- e) develop initiatives tailored to each region with inputs from the regional aviation safety groups (RASGs) in support of the goals and targets of the Global Aviation Safety Plan (GASP) and Global Air Navigation Plan (GANP) with a focus on the effective implementation of State safety programmes (SSPs) and safety management systems (SMSs) at the State and service provider levels, respectively, including the development of the required safety management competencies and/or the delegation to States, regional safety oversight organizations (RSOOs) and regional accident and incident investigation organizations (RAIOs);
- f) further support the development of appropriate harmonized safety performance indicators (SPIs) at the regional, State and service provider levels and explore the development of means to monitor the effectiveness of SSP and SMS on a more real-time basis;
- g) in collaboration with States, RSOOs and industry explore more powerful methods of identifying hazards and managing risk, suitable for complex socio-technical systems such as aviation and adaptable, regardless of the type of risk;
- h) in collaboration with States, RSOOs and industry explore the benefits of a unified framework for integrated risk management (safety, security, environment, etc...) taking into account the evolution of ISO management standards; and
- i) update, for adoption by the 40th Session of the ICAO Assembly, Assembly Resolutions related to safety management to reflect Amendment 1 to Annex 19 — *Safety Management*, as well as Amendment 15 to Annex 13 — *Aircraft Accident and Incident Investigation*, with consideration given to an overarching safety management Assembly Resolution to complement Assembly Resolution A39-12, Appendices A and B, related to the Global Aviation Safety Plan (GASP) and Global Air Navigation Plan (GANP) in order to focus the attention of States on key aspects of achieving effective SSP implementation.

**RECOMMENDATION 6.2.1/1 - STATE SAFETY PROGRAMMES (SSPS)**

That States:

- a) identify and address the need to build capacity at the State level for the management of change; and
- b) share their experiences in civil-military cooperation for State safety programmes (SSPs) implementation in conferences, meetings and/or on the safety management implementation (SMI) website.

That ICAO:

- c) review the acceptable level of safety performance (ALoSP) concept taking into consideration the experience of States;
- d) review the need for additional guidance on the management of change at the State level; and
- e) ensure that appropriate emphasis is placed on safety management in the update of Appendix I, Coordination and cooperation of civil and military air traffic, of Assembly Resolution A38/12, *Consolidated Statement of continuing ICAO policies and associated practices related specifically to air navigation*.

**RECOMMENDATION 6.2.3/1 - DEVELOPING SAFETY INTELLIGENCE**

That States and international organizations:

- a) collaborate for the development of trust sharing networks and adhere to the protective provisions as provided in Amendment 1 to Annex 19 - Safety Management; and

That ICAO:

- b) support States with right-to-know laws in addressing the provisions for the protection of safety data, safety information and related sources in Amendment 1 to Annex 19.

**RECOMMENDATION 6.3/1 - UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP) CONTINUOUS MONITORING APPROACH (CMA)**

That States:

- a) continue to engage fully in the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA);
- b) complete their self-assessments of the USOAP Protocol Questions (PQs) in a detailed and reliable manner and keep them up-to-date as needed;
- c) enhance cooperation and sharing of experiences in the implementation of USOAP CMA, in particular at regional level.

That ICAO:

- d) continue to evolve the USOAP CMA methodology, processes and tools;

- e) as a matter of priority, implement the recommendations and observations of the Group of Experts for USOAP CMA Structured Review (GEUSR) and, in particular, make available to States the set of indicators forming part of the State safety risk profile;
- f) ensure that pertinent information is not lost when reducing the total number of USOAP CMA PQs, especially with respect to PQs not directly related to safety oversight, which should be included in the appropriate ICAO audit mechanism;
- g) implement as a matter of priority the GEUSR recommendations regarding the structured revision of the PQs (Group A recommendations) and the identification of ‘Priority PQs’ (Group B recommendations);
- h) ensure the continuous monitoring of the States remains robust, relevant and up-to-date; and
- i) establish a study group before the 40th Session of the ICAO Assembly for the further evolution of the USOAP CMA, beyond the GEUSR recommendations, to address means to avoid duplication of efforts and find synergies 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.

**Agenda Item 7:**

**RECOMMENDATION 7.1/1 - DATA-DRIVEN DECISION-MAKING**

That States:

- a) implement data-driven decision-making processes, taking into account the ICAO safety and air navigation indicators, within their safety and air navigation activities and to build data analysis capacity;
- b) consider using ICAO’s air navigation analysis solutions, especially during the initial development of their State safety programmes (SSPs), and joining the ICAO Safety Information Monitoring System (SIMS) project to better utilize their stored data;
- c) exchange safety and air navigation information with other Member States through data analysis tools such as SIMS in support of safety risk management;
- d) continue joint development of safety risk assessment models that support and enable baseline risk quantification, safety risk assessment and forecasting to support risk-based decision making, accident and incident modeling, barrier analysis, sensitivity, and “what if?” analyses to ensure that primary safety considerations are addressed within the integrated safety risk assessment models;
- e) together with industry stakeholders, support regional mechanisms and platforms for greater data sharing and alignment of safety priorities.

That ICAO:

- f) further develop and promote iSTARS and SIMS and other analysis solutions, and conduct regular iSTARS User Group Meetings so as to continually adapt to the changing safety environment;
- g) encourage activities that facilitate global reporting of safety events and vulnerabilities to assure that the necessary safety data is available;

- h) review and develop guidance to further facilitate the sharing of safety data between operators and those responsible for the type design and manufacture of aircraft;
- i) raise awareness in States on the importance of initiating SSP and SMS implementation with simple processes that optimize resources to demonstrate benefits and develop momentum required to achieve the needed change in the organizational culture;
- j) take action to foster the creation of uniform processes in States that promote the sharing of safety data;
- k) encourage States to use the ICAO Safety Management Implementation website as an information sharing platform to facilitate the exchange of experience in regional data sharing among regional groups; and
- l) support regional mechanisms and platforms that enable States and industry stakeholders to share and align safety priorities in support of the RASGs.

#### **RECOMMENDATION 7.1/2 - STANDARDIZED RISK-BASED DECISION MAKING POLICIES AND BEST PRACTICES FOR VALIDATION OF FOREIGN PRODUCTS**

That States:

- a) support ICAO's work, through the appropriate group of experts to determine the need for developing new materials to support further reduction in duplicated certification activity, by conducting a feasibility study for developing common standards and recommended best practices for recognizing the capabilities of SoD certification systems (including design approvals/design organization recognition);
- b) support the development of ICAO Standards and Recommended Practices (SARPs), guidance material and manuals that Member States use to issue certificates for products, and complement them with guidance for best practices in conducting validation activities.

That ICAO:

- c) continue to encourage the reduction of duplicate certification action conducted by Member States that offers no commensurate increase in safety; and
- d) review and develop materials for inclusion in the *Airworthiness Manual* (Doc 9760), *Safety Management Manual (SMM)* (Doc 9859), Annex 8 - *Airworthiness of Aircraft*, and/or Annex 19 - *Safety Management*, for States of Registry (SoR) to determine the appropriate level of involvement in validation/recognition principles for States of Design (SoD) approvals.

#### **RECOMMENDATION 7.2/1 – STRENGTHENING RSOOS**

That States:

- a) further support the strengthening of regional safety oversight organizations (RSOOs) by engaging actively in the development of their RSOO, by securing adequate and sustainable RSOO funding mechanisms, and, as appropriate, by further delegating safety oversight functions to the RSOO.

That ICAO:

- b) recognize that RSOOs have an important role to play in carrying out safety oversight functions on behalf of their Member States and, within the Global Aviation Safety Plan (GASP) framework, in addressing safety issues at the regional level;
- c) support better alignment and harmonization between PIRGs and RASGs while maintaining the safety framework of the RASGs through consultation with Member States;
- d) further support the strengthening of RSOOs and their recognition within the ICAO safety system by facilitating access to technical support, facilitating the sharing of experience and knowledge between RSOOs through the RSOO Cooperative Platform, establishing the proposed Global Aviation Safety Oversight System (GASOS) and by reinforcing direct cooperation between ICAO and RSOOs in the framework of the GASP; and

That RSOOs:

- e) continue to engage in the RSOO Cooperative Platform and engage actively in the establishment of the proposed GASOS by supporting its implementation and, where applicable, by taking steps towards recognition and in strengthening their safety oversight capabilities.

**RECOMMENDATION 7.2/2 - ICAO RUNWAY SAFETY PROGRAMME - GLOBAL RUNWAY SAFETY ACTION PLAN**

That States:

- a) recognise that runway safety-related accident categories, particularly runway excursions and incursions, continue to be a global safety priority for aviation stakeholders as determined by a risk-based analysis;
- b) urge runway safety stakeholders, including aircraft operators, air navigation service providers, aerodrome operators, aerospace industry, and regional aviation safety groups, to implement the actions in the GRSAP to reduce the global rate of runway excursions and runway incursions;
- c) continue to establish requirements and activities aimed at improving runway safety through State runway safety programmes;
- d) encourage aerodrome operators to establish effective runway safety teams and encourage all runway safety stakeholders to actively participate in established runway safety teams; and

That ICAO:

- e) continue to lead and coordinate the runway safety programme with its partner organizations to work together to mitigate runway safety-related risks.

**RECOMMENDATION 7.3/1 – ICAO IMPLEMENTATION STRATEGIES**

That ICAO:

- a) strengthen the linkage between the Global Air Navigation Plan (GANP), the Global Aviation Safety Plan (GASP) and the Global Aviation Security Plan (GASeP) to achieve an integrated implementation approach;
- b) take into account implementation support needs when developing provisions;

- c) further improve the planning and implementation regional group (PIRG) and regional aviation safety group (RASG) mechanisms to enhance the coordination and alignment of implementation between regions;
- d) consider the development of a global collaboration mechanism to facilitate interregional alignment, harmonization, and sharing of best practices and lessons learned;
- e) support the development of a flexible, progressive and risk-based strategy to improve global implementation of Standards and Recommended Practices (SARPs);
- f) request an appropriate group of experts to further review and explore a process that would facilitate short-term (successive) aircraft interchange operations; and
- g) further develop risk management capabilities and facilitate implementation of multilateral arrangements for the sharing of risk information and (regional) contingency planning related with civil aircraft operations over or near conflict zones.

**RECOMMENDATION 7.3/2 - AVIATION SAFETY IMPLEMENTATION ASSISTANCE PARTNERSHIP (ASIAP)**

That ICAO:

- a) continue to develop the prioritization of States and areas of technical assistance criteria in order to achieve appropriate and transparent prioritization;

That ASIAP Partners:

- b) strive for greater commitment to, and participation in, the Aviation Safety Implementation Assistance Partnership (ASIAP) Programme, and invite other States and international organisations that can provide technical assistance to States to join ASIAP;
- c) and other stakeholders providing technical assistance (including States, regional safety oversight organisations (RSOOs), international organisations, industry and financial institutions) coordinate their technical assistance activities and make use of the online Project Database (<https://www.icao.int/safety/ASIAP/Pages/Tools.aspx>) in order to reduce duplication of activities and effort;
- d) apply the Project Outcome Indicators (POIs) to their projects and review the measurable results in coordination with each other; and
- e) including ICAO, States, international organizations, industry and financial institutions provide funding to support technical assistance activities.

**RECOMMENDATION 7.3/3 - STATE NATIONAL PLANNING FRAMEWORK**

That States:

- a) reaffirm support for the fundamental roles and responsibilities of Contracting States, Council and the Air Navigation Commission, as provided in the *Convention on International Civil Aviation* (Doc 7300), for the development of quality and timely Standards and Recommended Practices (SARPs);

- b) enhance their involvement in all stages of the provision development process and encourage RSOOs and other aviation stakeholders to do the same;
- c) support the ICAO Next Generation of Aviation Professionals (NGAP) Programme in light of the international need to address the existing aviation personnel shortages and to ensure a competent workforce capable of meeting the needs and challenges of the global aviation community into the future; and
- d) share best practices on applied strategies to promote more productive recruitment, training and education, development and retention programmes.

**RECOMMENDATION 7.3/4 – REGIONAL OFFICE RESOURCES FOR IMPLEMENTATION ACTIVITIES**

That ICAO:

- a) give due consideration in the allocation of resources to regional offices for the support of implementation activities; and
- b) support the Asia Pacific (APAC) Region in the implementation of Beijing Declaration and progress towards ICAO global targets.

**RECOMMENDATION 7.3/5 - SUPPORT FOR THE CONTINUATION OF THE COMPREHENSIVE REGIONAL IMPLEMENTATION PLAN FOR AVIATION SAFETY IN AFRICA (AFI PLAN)**

That States:

- a) support the continuation of AFI Plan activities and the project-based approach;
- b) request ICAO, international organizations and industry partners to support the AFI Plan and its associated projects;
- c) consider adopting an approach similar to the AFI Plan to address safety deficiencies and challenges in their region; and

That ICAO:

- d) extend the AFI Plan in order to enable it to accomplish its objectives

**Agenda Item 8:****RECOMMENDATION 8.1/1 - MEASURES TO PROACTIVELY ADDRESS EMERGING ISSUES**

That ICAO:

- a) raise awareness and inform States of existing guidance on identifying and addressing emerging safety issues, including mitigation actions and balancing the integrated management of distinct risks (existing/emerging);
- b) urge the regional aviation safety groups (RASGs) or other regional organizations, including regional safety oversight organizations (RSOOs), to institute a process for addressing emerging safety issues based on a data-driven analysis;
- c) urge States, regional entities and industry to participate actively in regional and sub-regional studies on emerging safety issues conducted by the RASGs;
- d) urge States, regional entities and industry to share information on emerging safety issues with other States and ICAO through the dedicated website;
- e) systematically collect information from States and regional organizations, for the purpose of assessing and monitoring their global safety impact, on the following: new concepts of operations and new technologies; new risk management concepts and methods coping with the dynamics and complexity of the aviation system; as well as the initial implementation of such new concepts, methods and technologies;
- f) establish a holistic, performance-based process for the development of ICAO provisions in response to these emerging issues and risks to assess if the established provisions achieve the objectives for which they were designed;
- g) provide guidance for the implementation of risk and performance-based assessment and oversight at both State and regional levels;
- h) provide a global, inclusive civil-military cooperation mechanism to move from a reactive situation to a proactive one by applying predictive, holistic risk management to emerging issues; and
- i) based on data from regional aviation safety groups, develop a study on the subject of objects falling from aeroplanes and guidance material on preventive measures.

**RECOMMENDATION 8.2/1 - REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS) OPERATIONS**

That ICAO continue developing Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS) and guidance material to support safe remotely piloted aircraft systems (RPAS) operations, and continue facilitating implementation of RPAS-related provisions through regional training activities.

**RECOMMENDATION 8.2/2 - MEDICAL STANDARD FOR PILOTS OF LIGHT AIRCRAFT**

That ICAO:

- a) review national medical certification protocols currently used by a number of States in order to identify commonalities; and
- b) based on this review of commonalities among the various States' national medical certification protocols, develop a Standard specifically addressing pilots flying light aircraft.