International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

NACC/WG/09 — WP/05
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Ninth North American, Central American and Caribbean Working Group Meeting (NACC/WG/09)
Mexico City, Mexico, 30 September to 04 October 2024

Agenda Item 4: Follow-up to the NACC/WG 2023-2024 work plan

RESULTS OF THE FOURTEENTH AIR NAVIGATION CONFERENCE

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This working paper presents a summary of the results of the fourteenth air navigation conference that has a direct impact on the region. It is requested to review the information and integrate the conclusions of the Conference into the work plan of the NACC/WG.

Action:	Suggested actions are presented in Section 4.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
References:	• Fourteenth air navigation conference (AN-Conf/14) https://www.icao.int/Meetings/anconf14/Pages/presentations.aspx

1. Introduction

1.1 With the theme "***Improving performance to drive sustainability***", the objective of the conference was to reach a global consensus on the performance improvement initiatives that can best assist ICAO, Member States and industry in addressing the environmental challenges facing global aviation and the rapid evolution of aviation operations and technologies with limited resources.

1.2 The conference provided an opportunity for detailed technical exchanges that led to agreement on a few high-level recommendations in the areas of air navigation and safety. The recommendations will be submitted for approval by the Council and, if appropriate, will also be sought for endorsement by the 42nd Session of the Assembly in 2025.

1.3 The AN-Conf/14 is a necessary link between the 41st and 42nd Sessions of the Assembly. It provided a forum to review the work that is already prioritized and being developed as part of the ICAO Business Plan for 2023-2025, to understand the new priorities for ICAO's future work, and to provide timely guidance to the Organization so that the next Business Plan 2026-2028 to be submitted to the 42nd Session of the Assembly in 2025 has a work programme with up-to-date priorities and the necessary resources for its implementation.

1.4 Given the preponderance of environmental issues on the aviation agenda and the need to agree on strategic plans for air navigation and operational safety based on the agreements reached at the 41st session of the Assembly, the conference sought to foster an intentional reorientation of efforts to prioritize existing or new technical activities that best contribute to achieving the Long-term Aspirational Goal (LTAG) for international aviation of net-zero emissions by 2050 and other areas of priority interest where ICAO activity is essential to ensure that the aviation system remains safe, efficient and more resilient.

2. Information sessions

2.1 The fourteenth Air Navigation Conference held the following meetings:

a) PPT 01: Expectations and objectives of AN-Conf/14
b) PPT 02: Introduction to ICAO's priority reordering activities and areas of focus, as well as the ICAO long-term Strategic Plan
c) PPT 03: Description of the ICAO safety and air navigation work programme
d) PPT 04: Ongoing work on the 41st Assembly decision on the standards development process
e) PPT 05: Evolution of the Continuous Monitoring Approach (CMA) of the Universal Safety Oversight Audit Programme (USOAP CMA)
f) PPT 06: Ongoing work on the change from magnetic north to true north
g) PPT 07: Ongoing work on updating the Global Air Traffic Management Operational Concept (Doc. 9854)
h) PPT 08: Ongoing work on Upper Airspace Operations (HAO)
i) PPT 09: Ongoing work related to Advanced Air Mobility (AAM), Unmanned Aircraft Systems (UAS) and UAS Traffic Management (UTM)
j) PPT 10: Ongoing work of the Integrated Communications, Navigation, Surveillance and Spectrum Task Force (ICNSS TF)
k) PPT 11: Ongoing work on Human Performance in Aviation Domains The briefings and associated presentations are available on the AN-Conf/14 website: https://www.icao.int/Meetings/anconf14/Pages/presentations.aspx

2.2 The recommendations outline activities for States, Organizations, Industry and ICAO. In the next section you will find a brief description of the recommendations to States.

3. Recommendations

Agenda Item 1: Update on the ICAO 2023-2025 Business Plan and long-term strategic planning

Realignment of the ICAO 2023-2025 Business Plan

3.1 **Recommendation 1.1/1** — Support the programmatic approach to ICAO business planning initiated with the 2023-2025 Business Plan, priority areas of interest. This recommendation invites States to include in their planning the priorities identified by ICAO Member States and ICAO itself. To work with the different stakeholders in the inclusion of these goals in their planning.

3.2 **Recommendation 1.1/2** — Resilience of the air navigation system.

- That States:

a) implement airspace optimization initiatives covered by ICAO provisions, such as air traffic flow management, flexible use of airspace and civil-military cooperation;

b) exchange information in advance on known and anticipated disruptions;

3.3 **Recommendation 1.2/1** — Work to improve the harmonization of the Global Aviation Safety Plan (GASP) and the Global Air Navigation Plan (GANP). That they review and incorporate changes to the GASP and GANP that will be integrated into the Assembly in 2025.

3.4 **Recommendation 1.3/1** — Evolution of the Technical Commission of the ICAO Assembly.

That States prepare their participation, including the submission of working papers to the Technical Committee of the 42nd session of the Assembly, focusing in particular on issues related to the Global Aviation Safety Plan, the Global Air Navigation Plan, new Assembly resolutions and amendments to existing resolutions.

Agenda Item 2: Timely and safe use of new technologies

Evolving aircraft technologies contributing to the LTAG (Long-Term Global Goal).

3.5 **Recommendation 2.1/1** - Evolving aircraft technologies contributing to the Long-Term Ambitious Goal. That States in collaboration with industry, assess the compatibility of existing aerodrome infrastructure and operational procedures with new aircraft technologies and identify changes required to achieve their full integration.

Safety risks associated with the evolution of evolving aviation technologies

3.6 **Recommendation 2.2/1** — Safety risks associated with new and evolving aviation technologies and concepts. Enhance the exchange of information, challenges, regulatory approaches and best practices with relevant ICAO expert groups, symposia and conferences regarding the safe introduction of new and evolving aviation technologies and concepts.

3.7 **Recommendation 2.2/2** – Interference to the global navigation satellite system and contingency planning. That States ensure that effective mitigation measures for radio frequency interference to the global navigation satellite system are implemented.

3.8 **Recommendation 2.3/1** – Draft 2026-2028 edition of the Global Aviation Safety Plan (GASP, Doc 10004). That States agree to include the proposed objectives and targets in the draft 2026-2028 edition of the Global Aviation Safety Plan (GASP).

3.9 **Recommendation 2.3/2** – Turbulence episodes as a global safety risk. That States exchange experiences and best practices in relation to turbulence episodes; and b) establish mechanisms to improve the availability of special Aero notifications.

Agenda Item 3: Air Navigation System Performance Improvements

Proposals to improve the efficiency of air navigation services contributing to the LTAG

3.10 Under this agenda the Fourteenth Air Navigation Conference covered the topics of:

a) Airspace optimization
b) Trajectory-based operations
c) Airspace classification and promotion of airspace delegation opportunities
d) Special transport operations
e) Upper airspace operations
f) Ground-based augmentation system and satellite-based augmentation system

And provided the following recommendations:

3.11 **Recommendation 3.1/1** - Draft 30/10 - Optimized application of longitudinal separation minima. Application of longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere.

3.12 **Recommendation 3.1/2** - Study on the feasibility of establishing an ICAO air navigation efficiency programme.

3.13 **Recommendation 3.1/3** - Facilitate the successful deployment of trajectory-based operations. States and regions should facilitate this implementation.

3.14 **Recommendation 3.1/4** – Free route airspace. Collaboration between States to expedite this implementation.

3.15 **Recommendation 3.1/5** – Delegation of responsibility for the provision of air traffic services. That ICAO develop a framework to assist States considering delegating responsibility for the provision of air traffic services.

3.16 **Recommendation 3.1/6** – Safe integration of space transport operations into the airspace system. Collaborate with Member States and international organizations to identify, compile and publish best practices.

3.17 **Recommendation 3.1/7** – Upper airspace operations.

Phase-out of legacy systems

3.18 **Recommendation 3.2/1** – Phase-out and/or optimize the use of legacy systems. Migration to more modern CNS systems.

3.19 **Recommendation 3.2/2** – Transition to flight and flow information services for the cooperative environment and cessation of the ICAO 2012 Flight Plan by 2034.

Eighth edition of the Global Air Navigation Plan (GANP)

3.20 **Recommendation 3.3/1** — Update of the global strategic level of the seventh edition of the Global Air Navigation Plan (GANP, Doc 9750). Approve the new version of the GANP.

3.21 **Recommendation 3.3/2** — Update of the global technical level of the seventh edition of the Global Air Navigation Plan and its regional and national levels. Focus on reducing CO2 emissions.

3.22 Under the **appendices** to this working paper you will find the summaries of the different discussions of the Agenda Items of the Fourteenth Air Navigation Conference.

4. Suggested actions

4.1 The meeting is invited to:

a) take note of the information provided in this working paper;
b) analyze each of the recommendations;
c) analyze their impact on the work of the NACC/WG;
d) integrate the appropriate actions, according to the decisions taken; and
e) update the work plan of the NACC/WG.

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FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 26 August to 6 September 2024

REPORT TO THE CONFERENCE ON THE GENERAL PORTION

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder.

REPORT OF THE FOURTEENTH AIR NAVIGATION CONFERENCE

LETTER OF TRANSMITTAL

To: President, Air Navigation Commission

From: Chairperson, Fourteenth Air Navigation Conference (AN-Conf/14) (2024)

I have the honour to submit the report of the Fourteenth Air Navigation Conference (AN-Conf/14) which was held in Montréal, Canada, from 26 August to 6 September 2024.

Paule Assoumou Koki
Chairperson

Montréal, Canada, 6 September 2024

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REPORT OF THE FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 26 August to 6 September 2024

HISTORY OF THE MEETING

1. DURATION

1.1 The Fourteenth Air Navigation Conference (AN-Conf/14) was opened by the President of the Council, Mr. Salvatore Sciacchitano, followed by an address by the President of the Air Navigation Commission, Mr. Junrong Liang, and the Deputy Minister of Transport, Canada, Mr. Arun Thangaraj, at 1000 hours on 27 August 2024, in the Assembly Hall of the Headquarters of the International Civil Aviation Organization (ICAO) in Montréal, Canada. The closing Plenary was held on 6 September 2024.

2. ATTENDANCE

2.1 The Conference was attended by xx members and observers nominated by xx Member States and xx international organizations, as well as by advisers and others. A list of participants may be found on the AN-Conf/14 website: https://www.icao.int/Meetings/anconf14/Pages/ListOfDelegates.aspx.

3. OFFICERS

3.1 The following Officers were elected at the first Plenary meeting:

Conference Chairperson:	Ms. P. Assoumou Koki (Cameroon)
Conference Vice-Chairperson:	Mr. N. Bin Mahmud (Malaysia)
Committee Chairperson:	Mr. P. Kelleher (United Kingdom)
Committee Vice-Chairperson:	Mr. L. R. de Souza Nascimento (Brazil)

4. SECRETARIAT

4.1 The Secretary of the Conference was Ms. M. Merkle, Director, Air Navigation Bureau, who was assisted by Mr. P. Luciani, Deputy Director, Air Navigation and Aviation Safety, and Mr. S. Da Silva, Acting Deputy Director, Monitoring, Analysis and Coordination. They were also assisted by Mr. C. Dalton, Chief, Air Traffic Management Section, as the Conference Technical Lead, by officers of the Air Navigation Bureau of ICAO, and by officers of other bureaux and offices of the Organization, as necessary. Conference administration was coordinated by Ms. G. Kim and Ms. V. Wong, and documentation and report writing were coordinated by Mr. M. De Leon, Ms. A. Guiang, Ms. C. Colapelle and Ms. Z. Naini.

5. ADOPTION OF THE AGENDA OF THE MEETING

5.1 The agenda presented in AN-Conf/14-WP/1 was adopted at the opening Plenary in accordance with the relevant provisions of the *Directives to Divisional-type Air Navigation Meetings and Rules of Procedure for their Conduct* (Doc 8143-AN/873/3).

6. WORKING ARRANGEMENTS

6.1 The organization plan submitted to States in advance of the Conference was approved without change at the opening Plenary. The plan called for the establishment of one committee as shown below:

Committee

Chairperson	Mr. P. Kelleher (United Kingdom)
Vice-Chairperson	Mr. L.R. de Souza Nascimento (Brazil)
Secretary	Mr. P. Luciani, Deputy Director, Air Navigation and Aviation Safety, assisted by Agenda Item Secretaries Messrs. C. Dalton, Chief, Air Traffic Management Section; Y. Fattah, Chief, Multi-disciplinary Priorities; I. Knowles, Chief, Operational Safety Section; and S. Da Silva, Acting Deputy Director, Monitoring, Analysis and Coordination

6.2 The Conference recalled the Guiding Principles for the Preparation and Conduct of the Conference (State letter ST 15/1-24/12, Attachment C, paragraph 1.3 refers) and reiterated that all information papers would be forwarded to the appropriate expert group(s) for consideration as necessary in progressing their concerned work programmes.

6.3 The discussions in the main meeting were conducted in Arabic, Chinese, English, French, Russian and Spanish. Working papers were presented in all languages and information papers were presented in the language(s) they were submitted in. The report was issued in Arabic, Chinese, English, French, Russian and Spanish.

7. REMARKS

7.1 President of the Council of ICAO, Mr. S. Sciacchitano

On behalf of the Council and the Secretary General of the International Civil Aviation Organization, I warmly welcome you to the Fourteenth Air Navigation Conference, under the theme of “Performance Improvement Driving Sustainability”.

This Conference will be crucial in defining the next steps for the improvement of global air navigation systems.

It is particularly significant as this year we celebrate the 80th Anniversary of the adoption of the Chicago Convention.

Eight decades ago, in the midst of a global conflict, nations united to transform aviation into a catalyst for peace and social and economic development. Today the challenges before international civil aviation are still great, yet we can draw inspiration from our past in order to meet them and successfully pursue new achievements.

This is why the Organization is focussing its 80th Anniversary celebration not solely on the achievements of the last eight decades, but, in my view more importantly, on how ICAO will be able to continue to support air transport development in the coming decades. This is the reason why the Council is reviewing and will soon approve the ICAO Strategic Plan 2026-2050.

In particular, we know that global air traffic has rebounded to pre-pandemic levels and is projected to more than double in the next two decades. This growth requires us to make immense efforts to meet our environmental responsibilities towards global net zero carbon emissions by 2050, the long-term aspirational goal.

Flight operations will have to contribute substantially to this goal. Secretary General Salazar will elaborate on our strategic approach to sustainable aviation growth in his address later today.

We must also safely integrate rapid technological advancements in aircraft design, autonomous flight and air traffic management systems while fortifying our aviation infrastructure against increasing cyber threats. While these challenges are not entirely new, they demand renewed focus and innovative solutions.

The 41st ICAO Assembly emphasized critical priority areas: the post-pandemic recovery and long-term sustainability of air transport; CO_2 emissions reduction as I just mentioned; and enhancing aviation system resilience while maintaining safety.

Your presence here reaffirms our collective commitment to addressing these priorities with strategic intent and renewed vigour.

This Conference will refocus our efforts on existing and new technical initiatives that align with ICAO's three aspirational goals foreseen in our Strategic Plan:

- zero fatalities in international aviation from accidents and acts of unlawful interference;

- net-zero carbon emissions by 2050 for international aviation operations; and

- aviation serving as an integral part of a thriving, connected, accessible, inclusive and affordable transport system for people and goods, contributing to socio-economic development, while ensuring no country is left behind.

Again, the Secretary General will provide more detail on how these goals shape our long-term strategy.

At this Conference, you will have an opportunity to review the outcomes of our Organization-wide reprioritization exercise. This exercise encompasses all activities in our current business plan and those stemming from the 41st Session of the Assembly. You will also discuss the priority focus areas set by the Council, which are designed to guide our organization's efforts during the current triennium.

Looking further ahead, we will explore ways to effectively align our global plans. Our aim is to ensure these plans complement each other in addressing both current and emerging challenges while minimizing overlapping initiatives and maximizing synergies. This alignment is crucial for the coherent evolution of our global aviation system.

As far as long-term strategic planning is concerned and in preparation for the 42nd Session of the Assembly in 2025, this Conference provides a valuable opportunity to discuss potential adjustments to the focus of the Technical Commission of the ICAO Assembly.

In this latter regard, I wish to underline that the Council is committed to enhancing the efficiency of ICAO Assemblies and intends to take better stock of conclusions of high-level conferences, as this Fourteenth Air Navigation Conference, consolidating them into Assembly Resolutions minimizing further discussions as much as possible.

I am sure that you will consider this aspect during your deliberations in the two weeks and, more importantly, in preparation of the 42nd ICAO Assembly in just over a year from now.

This Conference in particular builds on insights gathered from last year's Air Navigation World events in Montréal and Singapore. These events highlighted the aviation community's expectations and priorities, which will inform our discussions here.

Several focus areas will guide our deliberations. We will address the safe and timely introduction of new aircraft technologies, assessing their implications for operations and infrastructure in aerodrome operations and air traffic management.

The recent increase in global navigation satellite system (GNSS) interference is a significant concern. It impacts the safety and continuity of civil aviation operations. While I cannot refrain from condemning GNSS interference, as it endangers civil aviation safety, we must acknowledge that we need to reassess the adequacy of our current policies, standards, and guidance material, and develop effective mitigation measures.

Enhancing air navigation efficiency to support our environmental targets outlined in the long-term aspirational goal is crucial. We welcome new initiatives that promise broader, more consistent performance improvements.

A key issue on our agenda is the transition from legacy systems to new technologies.

In particular, we will focus on modernizing our flight planning mechanisms. This includes moving from our current system to the new approach of Flight and Flow Information for a Collaborative Environment, or FF-ICE for short. This represents a critical step in modernizing our approach and enhancing global air navigation efficiency.

We will also explore ways to improve connectivity between aircraft and ground-based systems. This is essential to facilitate the extensive information exchange required for implementing advanced air traffic management concepts, such as trajectory-based operations.

We acknowledge challenges, including optimal use of a limited frequency spectrum, ensuring seamless cross-border interoperability, and mitigating cyber threats.

Your feedback on the next editions of the Global Aviation Safety Plan (GASP) and Global Air Navigation Plan (GANP) is also crucial. The proposed goals and targets for the next GASP are meant to serve as catalysts to address global safety issues.

The GANP update reflects alignment with the priority areas recognized by the 41st Assembly and includes improvements on the conceptual roadmap, the performance framework and the Aviation System Block Upgrade (ASBU) framework.

I believe that this Conference is a critical bridge between the 41st and 42nd Sessions of the Assembly. It marks a significant milestone in our journey toward a more sustainable, safe and efficient global air navigation system.

Let us embark on these two weeks of deliberations with a profound sense of responsibility and optimism. The outcomes of our discussions will shape ICAO's work programme and set the stage for impactful decisions at the 42nd Assembly.

I would like to close by thanking you for your commitment and active participation. And I would urge you to make these discussions count – let us forge a path forward with resolve and vision.

It is now my honour to declare the Fourteenth Air Navigation Conference open and I would like to invite the President of the Air Navigation Commission, Mr. Junrong Liang, to address the Conference and elaborate further on its agenda. I wish you very successful deliberations.

7.2 **President of the Air Navigation Commission, Mr. J. Liang**

Distinguished Chief Delegates and Delegates, Deputy Minister of Transport Canada, President of the Council, Secretary General of ICAO, fellow Air Navigation Commissioners, ladies and gentlemen, it is my honour and pleasure to welcome you to ICAO's Fourteenth Air Navigation Conference.

2024 marks a year of celebrations. The global aviation community celebrates the 80th Anniversary of ICAO which was established by the Convention on International Civil Aviation popularly known as the Chicago Convention, signed on 7 December 1944. You might also be aware that the Air Navigation Commission (ANC) celebrates its 75th Anniversary this year, since its inauguration on 7 February 1949.

Over these years, ICAO, in collaboration with States and industry, has achieved remarkable milestones. Aviation safety has continually improved making air transport undoubtedly the safest mode of transportation. Similarly, air navigation capacity and efficiency have been enhanced enabling the handling of billions of passengers and millions of flights annually. I would like to take this opportunity to thank all Member States and international organizations for your continued support for the work of this Organization and in particular, the technical work of the ANC.

Although so much has been achieved, yet a lot remains to be done. The future of the air transport industry will be characterized by even more sophisticated aircraft and engine technologies, automation, digitalization and associated cybersecurity threats, new entrants such as remotely piloted aircraft systems (RPAS) and advanced air mobility (AAM), rapid passenger traffic growth, sustainability and environmental concern. These are opportunities for us to exploit for the benefit of the industry and its users but only if we are able to properly manage the challenges and mitigate the risks that come with them.

To continuously fulfil its mandate in ever evolving and increasingly challenging circumstances, ICAO will need to do more with limited resources. It is therefore critical to prioritize the Organization's work programme while enhancing the efficiency of its work methods in order to meet future needs.

At the 41st Session of the ICAO Assembly, the importance of holding divisional-type meetings, such as air navigation and high-level safety conferences, prior to Assembly sessions was emphasized. These meetings are vital as they provide States and industry with opportunities to discuss critical issues, identify priority areas and propose necessary technical work for inclusion in the business plan for the upcoming triennium.

AN-Conf/14 serves as a crucial bridge between 41st Assembly and 42nd Assembly, serving as a forum to gather insights on the Organization's ongoing work and to shape its future direction. This Conference aims to build consensus, secure commitments, and formulate recommendations that will enable ICAO and Member States to advance key air navigation initiatives in a rapidly evolving aviation environment.

The theme of this Conference, "Performance Improvement Driving Sustainability", although traditional, represents a transformational opportunity that will form the basis for long-term strategic planning and enable ICAO to manage and mitigate the challenges ahead.

Over the decades, ICAO has developed more than 12 000 Standards and Recommended Practices (SARPs) across 19 Annexes and six Procedures for Air Navigation Services (PANS). These are constantly evolving to accommodate the latest developments and innovations, laying the foundation for a safe, efficient, and sustainable global civil aviation system.

However, rapid technological advancements and increasing industry demands highlight the critical need to leverage these Standards to achieve the performance improvements necessary for a resilient and sustainable aviation system that meet the expectations of States, industry and other stakeholders.

The Conference will focus on topics related to air navigation system performance improvement and ways to address the rapid evolution in aviation operations and technologies in a safe and timely manner. Some sub-agenda items support the contribution to the global long-term aspirational goal for international aviation (LTAG), especially through the safe and timely use of new technologies and enhanced operational efficiency.

In addition to air navigation system performance improvement, this Conference will provide an opportunity for in-depth technical discussions on the timely and safe use of new technologies and the hyper-connectivity of the air navigation system. The outcomes of these discussions will guide the Organization in prioritizing its technical work programme within the context of constrained resources.

As we consider the opportunities and challenges presented by emerging technologies, it is critical to take a long-term view. While focus on the next triennium, we should also look beyond to anticipate the future trends and direction of global air navigation. This forward-looking approach will enable efficient decision making at the next Assembly regarding technical strategies and policies for air navigation, ultimately leading to a safe and globally harmonized deployment of new technologies and innovations.

Over the next two weeks, your efforts will be consolidated into a report by the dedicated professionals in the ICAO Secretariat. The outcomes of your deliberations will be firstly presented to the Air Navigation Commission. This will allow us to prioritize key activities, as we did after the High-level Conference on COVID-19 and the 41st Assembly, in our role as technical advisors to the ICAO Council.

During the process of preparing for this Conference, efforts have been put into initiatives to improve effectiveness and efficiency. These initiatives are based on lessons learned from previous high-level conferences and the 41st Assembly. We anticipate that these improvements will allow for more constructive and fruitful discussions. Following the Conference, the ANC intends to review these initiatives, and the lessons learned will contribute to the preparations for future high-level technical conferences and Assemblies.

Before closing my remarks, I take this opportunity to introduce to you my fellow Air Navigation Commissioners. They are nominated by specific ICAO Member States and appointed by the Council, work independently, as a team, and utilize their expertise in the interest of the entire international civil aviation community. Please join me in deeply thanking them for their continued efforts and the key role they played in the preparations for AN-Conf/14.

7.3 **Deputy Minister of Transport, Canada, Mr. A. Thangaraj**

I am honoured to welcome you to ICAO's Fourteenth Air Navigation Conference, and to the City of Montréal. Montréal and ICAO share a unique and longstanding connection. Since its inception, ICAO has been a cornerstone of Canada and Montréal's aviation ecosystem, fostering an environment where international collaboration and aviation expertise thrive. Your presence here today stands as evidence of this fruitful and long-lasting partnership.

Canadians are proud to welcome you and to host this Organization right here in the heart of Montréal.

2024 is a landmark year for international civil aviation. We celebrate the 80th Anniversary of the Chicago Convention, and the 75th Anniversaries of both the Air Navigation Commission and Annex 9 on Facilitation. It is also the 50th Anniversary of Annex 17 on Aviation Security.

Thanks to the Chicago Convention, we are all the very fortunate beneficiaries of a vision – a vision that, in 1944, inspired 54 nations to come together and agree on the core principles to ensure civil aviation would fulfill its promise to "create and preserve friendship and understanding among the nations and peoples of the world".

As I prepared my remarks for today, I felt it was important that I touch on the spirit of those principles – the core values that initially brought us together and have continued to form the basis of our commitment to the safe, secure, and sustainable development of international civil aviation.

These simple but powerful principles have laid the foundation upon which ICAO has relied to support international air transport through historical challenges.

Aviation safety and security provides the bedrock of public confidence and forms the key pillars of ICAO. Standards and procedures safeguarding passengers, crew, and aircraft reflect our commitment to aviation remaining the safest way to travel.

International Cooperation: At its heart, the Convention champions the value of collaboration. It establishes this Organization as a forum where each Member State has a voice and constitutes an elected Council of equals to ensure geographic representation. This spirit of cooperation has given rise to crucial initiatives such as No Country Left Behind, which allows ICAO to meet its commitments to develop international civil aviation "on the basis of equality of opportunity".

Harmonization and expertise: The development, update, and implementation of Standards across the globe does not only safeguard the safety and security of aviation operations, it also guarantees that our global aviation system and standards will continue to match the ever-increasing speed of innovation.

This work requires the active and continuous involvement of all aviation stakeholders, from industry and technical experts to States. By contributing to the work of the Air Navigation Commission and its panels, we are investing in the safety, efficiency, and sustainability of our own aviation sectors.

While it promotes Standards globally, the Convention also recognizes the "complete and exclusive sovereignty" of each Member State over its own airspace. It is this balance of sovereignty and harmonization, embodied in the value of mutual respect, that is so fundamental to the spirit of this institution and to the success of aviation globally.

Adhering to the mutually established rules is vital for maintaining trust and accountability in our system and safeguarding our institutions' integrity. It is up to all Member States to ensure that ICAO can continue to successfully lead the sector for generations to come.

The growing demand for air travel only sharpens the urgent need to mitigate the impact of aviation on the environment. Our global community will need to decarbonize the sector through new and novel technologies, more efficient operations, and improved infrastructure to enable the use of new sustainable fuels. ICAO and its Member States took important steps forward by agreeing to a long-term aspirational goal of net zero by 2050.

The continued growth of aviation with increasing flights and passenger numbers will also require continuous enhancement to safety and security but also improvements to the passenger experience. This work includes making aviation more accessible for persons with disabilities and reduced mobility.

Inclusivity, however, should not be confined to the passenger seat. Women continue to be underrepresented in important jobs across the aviation industry, including as pilots, and aircraft maintenance engineers. Increasing the participation of women is key to meeting critical challenges facing the aviation industry.

For more than 80 years, our collective efforts have been instrumental in creating peace of mind for billions of passengers. Unfortunately, there are tragic examples where this has not been the case. It is our collective responsibility to prevent accidents and future aviation tragedies.

Against the backdrop of these devastating events, ICAO has proven an effective forum for worldwide action. For example, ICAO successfully confronted challenges of unprecedented scale such as the COVID-19 pandemic and enabled aviation to recover safely and successfully, and to continue to grow.

The theme and topics of the next couple of weeks underscore the critical role of ICAO. By providing an indispensable forum for detailed technical discussions on a global level, ICAO can pave the way for the safe integration of new technologies in worldwide aviation operations.

Let me, once again, express my gratitude for your engagement and enthusiasm.

Your contributions here will be crucial. They will make it possible to turn our ambitions into concrete actions and will set the aviation safety and air navigation agenda for next year's ICAO Assembly.

Again, it gives me great pleasure, as a Representative of the Government of Canada and Host Country to ICAO Headquarters, to welcome you to this important event. Have a wonderful stay in Montréal, *et que notre conférence soit un succès!*

7.4 **Secretary General of ICAO, Mr. J.C. Salazar**

Twelve billion passengers aboard emission and fatality free flights, connecting people everywhere, and ensuring aviation has preserved and significantly expanded its role as a catalyst for sustainable development worldwide. That is our ambition for 2050.

As ICAO Secretary General, it is my great pleasure to welcome you to this Fourteenth Air Navigation Conference, where we will shape this future under the theme "Performance Improvement Driving Sustainability".

Over the next two weeks, we will work together to reach a global consensus on performance improvement initiatives that support this objective. These initiatives will enable ICAO, Member States, and industry to address aviation's global environmental challenges and adapt to rapidly evolving operations and technologies, all while working within available resources.

This will occur against the background of complex challenges to connect the world safely, securely and sustainably. Climate change, cybersecurity, and other crises demand our attention. We must integrate new entrants into our airspace, including drone and commercial space operators, while managing complex information systems and high-altitude operations. Addressing these complex challenges has necessitated an evolution in ICAO's role and responsibilities.

Since 2007, ICAO's role has expanded significantly, particularly in the areas of monitoring and oversight of State safety and security oversight systems, and the provision of implementation support to States. This expansion came in response to several significant accidents, which highlighted the critical need for enhanced oversight and assistance in addressing safety and security shortcomings.

Now with the technological, environmental, economic, and social changes before us we will see our role expanding once more.

From my perspective, the journey ahead is promising, especially as we have already made significant strides in key areas. Our Transformational Objective, backed by the Council and Assembly, is modernizing ICAO's processes and systems to better serve our stakeholders. The Council has set clear Priority Focus Areas to guide our efforts in stewarding global aviation. And as we celebrate ICAO's 80th Anniversary, we have garnered support for our comprehensive new long-term ICAO Strategic Plan 2026 - 2050, updated Safety, Security and Air Navigation Global Plans, and the new Global Framework for SAF, LCAF and other Aviation Cleaner Energies.

ICAO's new long-term Strategic Plan will guide our mission from 2026 to 2050.

This plan synthesizes key insights from the past five years, including: review of States' needs and expectations; alignment with ICAO Global Plans and industry trends; input from high-level conferences like this one; directives from the most recent ICAO Assembly.

It is focused on outcome-oriented strategic goals that will remain relevant through 2050 and beyond.

We have also crafted a renewed vision for ICAO, of "A safe, secure and sustainable international civil aviation system that connects the world for the benefit of all nations and people".

To realize this vision, we've set three ambitious and interconnected aspirational goals: zero fatalities in international aviation from accidents and acts of unlawful interference; net-zero carbon emissions by 2050 for international aviation operations; aviation serving as an integral part of a thriving, connected, accessible, inclusive, and affordable transport system.

Our mission is to lead international civil aviation in achieving responsible connectivity. This leadership is fundamental to: driving social and economic development; ensuring environmental sustainability; and realizing our vision of a connected world. We fulfil this mission through several key activities: namely, developing policies and Standards, conducting monitoring and auditing, supporting Member States in building their aviation capabilities, and advancing international air law.

ICAO's six new Strategic Goals form the backbone of our new long-term strategy.

Aviation's success over the past 80 years has always been predicated on putting safety first. It is therefore no surprise that our first goal is that every flight is safe and secure, with the ultimate goal of zero fatalities from aviation accidents or incidents. This goal is crucial in maintaining public trust and enabling the continued growth of global air travel.

Our second goal focuses on environmentally sustainable aviation growth. As we connect the world, we must do so responsibly by minimizing both emissions and noise. We explicitly state that we must ensure that air transportation capacity grows to meet increasing global demand. This environmentally conscious approach drives innovation, opens new opportunities, and ensures the long-term viability of our industry and our planet.

Our third goal addresses mobility, reliability, accessibility, and seamlessness. We aim to create a global aviation system that serves all users efficiently, regardless of their location or circumstances. This includes ensuring timely transportation even during disruptions, connecting remote areas to larger hubs, and offering stress-free cross-border travel experiences.

The following goals describe how ICAO will facilitate and lead international alignment. This is how we encourage progress towards the outcomes stated in the first three.

Our fourth goal is to assist States in effectively prioritizing and planning capacity development and implementation support work. This goal is crucial to ensure that all nations can participate fully in the global aviation network. We consider each State's specific needs while leveraging common solutions and partner support where appropriate, taking ICAO's integrated approach in providing support for Member States in implementing Standards and Recommended Practices (SARPs).

The fifth goal aims to advance and adapt International Air Law to meet the needs of an ever-evolving aviation sector. Our legal framework must remain relevant, addressing current and emerging challenges while facilitating civil aviation growth, development, and operations. This goal ensures that our rules-based system evolves alongside technological advancements and changing global needs.

Our sixth goal, perhaps the most novel, is to ensure that air transport delivers economic prosperity and societal well-being for all. This goal embodies the ultimate purpose of connecting the world responsibly –

to create tangible benefits for people and communities globally. We recognize that international civil aviation's value can be measured for each Member State in terms of increased prosperity and well-being.

Each goal will be defined by metrics to track our progress in international collaboration. For safety, we may use fatality rates per million flights from all causes. To gauge environmental sustainability, we could track global CO_2 emissions per revenue kilometre or ton flown. The work of this Conference will contribute to the definition of these metrics.

We have identified four high-priority enablers that will drive our progress.

First, ICAO's continuous organizational improvement builds on our Transformational Objective, which has been delivering significant positive change within ICAO for the past 18 months. This work must continue into the next triennium and beyond. Our objective is to optimize our operational efficiency, enhance our responsiveness to emerging aviation challenges, and strengthen our capacity to support Member States effectively.

Complementing this, our Innovation Strategy, mandated by the 41st Assembly, will help prioritize the work of technical panels and study groups, ensuring we stay at the forefront of aviation advancements.

Equally important is our commitment to workforce development. We aim to attract a diverse and capable new generation of professionals who will drive aviation in the coming decades. Our Gender Equality Programme will play a crucial role in this effort by fostering inclusivity and tapping into a broader talent pool.

Lastly, our work in developing partnerships and improving resource delivery is vital for sustainable progress. The FINVEST Hub for decarbonization projects represents a new financial coordination and partnership effort that ICAO is uniquely positioned to lead. This initiative, along with other efforts in partnership development and resource mobilization, is key to ensuring our budget sustainability and overall success.

We are currently developing the Business Plan for 2026-2028, which will operationalize the Strategic Plan, and is results-based. This plan will provide a detailed description of several key elements. It will outline the global context on which our outcomes are based, including frameworks like the GANP and GASP. The plan will also address our challenges and opportunities, as well as our priorities and desired achievements for the end of the triennium. Importantly, all of these elements will be accompanied by complete and clear-cut targets.

To ensure effective implementation, we have developed a comprehensive performance monitoring framework that complements the Business Plan. This framework includes key performance indicators aligned with our targets. We conduct regular reviews recognizing that diligent monitoring of our short-term performance is crucial to achieving the long-term aviation advancements outlined in our Strategic Plan. This approach allows us to track progress, make timely adjustments, and maintain momentum towards our ambitious goals.

As we move forward with this new long-term Strategic Plan, let us remember that our work in connecting the world impacts not just our industry, but the global community. The future of aviation connectivity is bright, and it calls for our collective effort and commitment.

Before I conclude, I would like to take a moment to recognize the invaluable contributions of the Air Navigation Commission, particularly as we celebrate its 75th Anniversary this year. Your expertise, dedication, and tireless efforts in developing and refining air navigation policies and Standards and Recommended Practices have been instrumental in shaping the future of global aviation. Your work forms the backbone of many of the initiatives we will discuss during this Conference, and I extend my heartfelt gratitude for your ongoing commitment to excellence.

I would also like to express my sincere appreciation to our Secretariat colleagues. Your diligence, expertise, and countless hours of preparation have been crucial in setting the stage for a successful Conference. Your commitment to ICAO's mission and your tireless efforts behind the scenes are the driving force that enables us to tackle the complex challenges facing global aviation. Thank you for your dedication and hard work

I would also like to express my gratitude to all of you in advance for your active participation in this Conference, which is so important.

8. ICAO WALTER BINAGHI AIR NAVIGATION COMMISSION LAUREL AWARD

8.1 On 18 June 1998, the Air Navigation Commission (ANC) established the ICAO Air Navigation Commission Laurel Award which was later named to the ICAO Walter Binaghi ANC Laurel Award in recognition of Mr. Binaghi's contribution during the eight years he served as the ANC's first President. The award, which is given every two years, had been presented to ten individuals in recognition of their contributions to the mandate of the Commission to promote safety, efficiency and capacity in civil aviation.

8.2 The tenth ICAO Walter Binaghi Air Navigation Commission Laurel Award was bestowed by the President of the Air Navigation Commission, to Mr. J. Mettrop, nominated by the United Kingdom, for his contribution to the work of the ANC in furthering the safety, regularity and efficiency of international civil aviation, particularly, through his participation in the work of the ANC's Frequency Spectrum Management Panel (FSMP). It also acknowledged his outstanding contribution to civil aviation through active promotion and defence of the limited aeronautical frequency spectrum resource, critical to the provision of safe and efficient communications, navigation, and surveillance/air traffic management (CNS/ATM).

8.3 The Laurel Award recipient was presented with a certificate and a statuette replica of the bronze sculpture *Vuelo*, i.e. flight, designed by Leonardo Nierman and donated by Mexico, which sits in the centre of the Air Navigation Commission Chamber at ICAO Headquarters.

9. CLOSING REMARKS

(Closing remarks by the Director of the Air Navigation Bureau will be included following completion of the Conference.)

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AGENDA OF THE CONFERENCE

Agenda Item 1: Update on the ICAO 2023-2025 Business Plan and long-term strategic planning

1.1: Reprioritization of the ICAO 2023-2025 Business Plan
1.2: Strategic alignment of global plans for performance improvement
1.3: Evolution of the Technical Commission of the ICAO Assembly

Agenda Item 2: Timely and safe use of new technologies

2.1: Evolving aircraft technologies contributing to LTAG
2.2: Addressing safety risks related to evolving aviation technologies
2.3: 2026-2028 Edition of the Global Aviation Safety Plan (GASP)

Agenda Item 3: Air navigation system performance improvement

3.1: Proposals to improve the efficiency of air navigation services contributing to LTAG
3.2: Phasing out legacy systems
3.3: Eighth Edition of the Global Air Navigation Plan (GANP)

Agenda Item 4: Hyper-connectivity of air navigation system

4.1: Connected aircraft concept and associated challenges
4.2: Cybersecurity and information system resilience

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GLOSSARY OF TERMS

AAM	Advanced air mobility
ACI	Airports Council International
AFCAC	African Civil Aviation Commission
AIS	Aeronautical information service
ANP	Air navigation plan
ANS	Air navigation services
ANSP	Air navigation services provider
AOC	Aeronautical operational control
ASBU	Aviation System Block Upgrade
ASECNA	Agency for the Safety of Air Navigation in Africa and Madagascar
ATAG	Air Transport Action Group
ATCO	Air traffic control officer
ATFM	Air traffic flow management
ATM	Air traffic management
ATS	Air traffic services
CAEP	Committee on Aviation Environmental Protection
CANSO	Civil Air Navigation Services Organisation
CCT	Contingency coordination team
CMA	Continuous Monitoring Approach
CNS	Communications, navigation and surveillance
COCESNA	Central American Corporation for Air Navigation Services
CSIRT	Cybersecurity incident response team
CST	Commercial space transport
DATS	Digital air traffic services
DME	Distance measuring equipment
ECAC	European Civil Aviation Conference
ESA	European Space Agency
EUROCONTROL	European Organisation for the Safety of Air Navigation
eVTOL	Electric vertical take-off and landing
FF-ICE	Flight and flow – information for a collaborative environment
FRA	Free route airspace

FUA	Flexible use of airspace
GANP	Global air navigation plan
GAPPRE	Global Action Plan for the Prevention of Runway Excursions
GAPPRI	Global Action Plan for the Prevention of Runway Incursions
GASP	Global Aviation Safety Plan
GASeP	Global Aviation Security Plan
GBAS	Ground-based augmentation system
GNSS	Global navigation satellite system
GRSAP	Global Runway Safety Action Plan
HAO	Higher airspace operations
IATA	International Air Transport Association
IBAC	International Business Aviation Council
ICCAIA	International Coordinating Council of Aerospace Industries Associations
IFALPA	International Federation of Air Line Pilots' Associations
IFATCA	International Federation of Air Traffic Controllers' Associations
IFATSEA	International Federation of Air Traffic Safety Electronics Associations
ILS	instrument landing system
iPack	Implementation package
ISASI	International Society of Air Safety Investigators
ITF	International Transport Workers' Federation
ITU	International Telecommunication Union
KPI	Key performance indicator
LACAC	Latin American Civil Aviation Commission
LTAG	Long-term aspirational goal
MISP	Malware Information Sharing Platform
NACC	North American, Central American and Caribbean
NGAP	Next Generation of Aviation Professionals
PANS	Procedures for Air Navigation Services
PBN	Performance-based navigation
PFA	Priority Focus Area
PIRG	Planning and implementation regional group
PQ	Protocol question
RFI	Radio frequency interference

SAM	South American
SARPs	Standards and Recommended Practices
SBAS	Satellite-based augmentation systems
SMS	Safety management system
SSPIA	State safety programme implementation assessment
SWIM	System-wide information management
TBO	Trajectory-based operations
UAS	Unmanned aircraft systems
UN	United Nations
UNOOSA	United Nations Office for Outer Space Affairs
USOAP	Universal Safety Oversight Audit Programme
UTM	UAS traffic management
VHF	very high frequency
VOR	VHF omnidirectional radio range

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SUMMARY OF INFORMATION SESSIONS

The information sessions, held on 26 August 2024, were intended to support more efficient and effective deliberations during the Conference, to address requests from Member States and international organizations received during the consultation on the need for the Conference (SL ST 15/1-23/12 dated 10 July 2023 refers) and to provide an update on various subjects. The objectives of the information sessions were to provide:

a) relevant information on the conduct of the Conference;

b) additional background information as precursors to subjects that will be tabled, supporting focused discussions during the Conference; and

c) an update on the progress of the work on the priority focus areas that have not reached the necessary maturity for consideration at the Conference.

Information sessions

- PPT 01: Expectations and Objectives of AN-Conf/14
- PPT 02: Introduction to ICAO reprioritization activities, priority focus areas and the ICAO long-term strategic Plan
- PPT 03: Overview of the ICAO safety and air navigation work programme
- PPT 04: Ongoing work concerning the decision of the 41st Session of the Assembly related to the Standards development process
- PPT 05: Evolution of the Universal Safety Oversight Audit Programme – Continuous Monitoring Approach (USOAP CMA)
- PPT 06: Ongoing work on the change from magnetic to True North
- PPT 07: Ongoing work concerning an update to the Global Air Traffic Management Operational Concept (Doc 9854)
- PPT 08: Ongoing work related to higher airspace operations (HAO)
- PPT 09: Ongoing work related to advanced air mobility (AAM), unmanned aircraft systems (UAS), UAS traffic management (UTM)
- PPT 10: Ongoing work related to the Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) Task Force
- PPT 11: Ongoing work on human performance in the different aviation domains

The information sessions and the related presentations are available at the AN-Conf/14 website: https://www.icao.int/Meetings/anconf14/Pages/presentations.aspx.

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AN-Conf/14-WP/211
30/8/24

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, 26 August to 6 September 2024

REPORT OF THE COMMITTEE ON AGENDA ITEM 1

The attached report has been approved by the Committee for submission to the Plenary.

Mr. Padhraic Kelleher
Committee Chairperson

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder[1]

[1] (7 pages)

Agenda Item 1: Update on the ICAO 2023-2025 Business Plan and long-term strategic planning

1.1: Reprioritization of the ICAO 2023-2025 Business Plan

Priority focus areas

1.1 The Conference reviewed AN-Conf/14-WP/3, presented by the Secretariat, which outlined the overall scope and actions taken to support the priority focus areas (PFAs). These PFAs were set by the ICAO Council to guide the prioritization exercise of activities within the current ICAO Business Plan based on the resolutions and decisions of the 41st Session of the ICAO Assembly. The paper also provided an overview of the efforts related to the initial phases of strategic planning in ICAO. The paper further recommended ways for States, international organizations and industry to be aligned with, and contribute to these efforts.

1.2 The Conference expressed strong support for the PFAs and the recommendations in AN-Conf/14-WP/3. It commended ICAO for the programmatic approach and the improved transparency in reporting through the key performance indicators (KPIs) using the results-based management approach. Regarding the PFAs, it recognized the overarching nature of implementation support and noted that the PFAs complement and do not impact the existing priorities and global frameworks. The Conference nevertheless noted the need for greater clarity on how the PFAs and the prioritization methodology would affect the Global Plans and the standardization roadmap, and the relationship between the PFAs, and safety, security, and air navigation challenges. In order to meet the air traffic demand of the future, the Conference noted that the modernization of air navigation capacity should be more explicitly reflected in the strategic goals of ICAO.

1.3 The Conference noted the continuing efforts in the shift towards results-based management and welcomed that the prioritization methodology would be presented during the next Assembly.

1.4 As a result of the discussion, the Conference agreed on the following recommendation:

Recommendation 1.1/1 – Support to ICAO's programmatic business planning approach initiated by the Business Plan 2023 - 2025 priority focus areas

That States:

a) consider the applicable ICAO priority focus areas as well as the future prioritized work programmes of ICAO when reviewing their implementation strategies and plans, including their regulatory framework; and

b) together with international organizations, and assisted by the industry where appropriate, endeavour to provide support and voluntary contributions (financial or in-kind) to the activities within the priority focus areas;

that ICAO:

c) based on the experience with the priority focus areas, extend the methodology of programmatic approach to the activities in the next Business Plans; and

d) through the planning and implementation regional groups and the regional aviation safety groups, in accordance with the Global Air Navigation Plan and the Global Aviation Safety Plan and their respective regional plans, incorporate into their work programmes and projects, initiatives taking into account alignment with the ICAO priority focus areas.

1.5 The Conference reviewed AN-Conf/14-WP/138 presented by Brazil, which suggested the integration of socioeconomic diversity and inclusion into the sustainability agenda of ICAO and that public policies should support funding for training and qualification of low-income individuals for aviation professions. The Conference recognized the workforce challenges and its potential impact on safety, and strongly supported the call for ICAO to broaden the focus of its Next Generation of Aviation Professionals (NGAP) programme beyond gender considerations.

1.6 The Conference emphasized the significance of related actions in securing aviation's future workforce and noted the role of the NGAP programme. It further recognized the importance of taking into account other diversity and inclusion topics, as well as the need for public policies and initiatives on training. The Conference noted that the work was ongoing within ICAO and agreed that the information in AN-Conf/14-WP/138 be referred to the appropriate expert group(s) for further consideration.

Data, data exchange and intelligence

1.7 The Conference reviewed AN-Conf/14-WP/57, presented by Hungary on behalf of the European Union and its Member States[2], other Member States of the European Civil Aviation Conference (ECAC)[3], European Organisation for the Safety of Air Navigation (EUROCONTROL), Singapore and the United States, on the need to establish a global framework for aviation safety data and intelligence management, and AN-Conf/14-WP/101, presented by the United States, co-sponsored by Australia, on a mechanism by which safety information collected by States can be made interoperable to ensure that it is shared for data-informed decision-making, and noted a Global Safety Information Management Exchange – Playbook, as presented in AN-Conf/14-WP/105. In its discussions, the Conference expressed strong support for AN-Conf/14-WP/57 and AN-Conf/14-WP/101 and noted the potential benefits resulting from the ability to produce global aviation safety intelligence based on aggregation of consistent and compatible data and information shared by multiple parties. The Conference also expressed the importance of having safeguards in place to protect the safety, confidentiality and integrity of data and information, as well as of establishing a governance framework of the global safety information exchange. These proposals would also support regional data/information exchange initiatives that would then contribute to data/information exchange at the global level. The Conference agreed that ICAO continues with the development of a global framework for aviation safety data and information exchange, while building on existing initiatives, and agreed that the contents of AN-Conf/14-WP/57, AN-Conf/14-WP/101 and AN-Conf/14-WP/105 be referred to the appropriate expert group(s) for further consideration.

Safety oversight audits

1.8 AN-Conf/14-WP/121, presented by New Zealand and co-sponsored by Australia, Canada and the United Kingdom, addressed the need for Universal Safety Oversight Audit Programme (USOAP) audit methodologies to respond to new and emerging aviation technologies and regulatory approaches, as well as being capable of recognizing alternative means of meeting the outcomes sought by Standards and Recommended Practices (SARPs). The Conference noted the process that the USOAP Continuous Monitoring Approach (CMA) used to evolve its tools and methodologies, which takes into account performance-based SARPS. The Conference agreed that the paper be referred to the appropriate expert group(s) to be carefully considered in progressing the development and enhancement of performance-based SARPs, as well as evolving the USOAP CMA using a step-by-step approach, promoting its stability and reliability, and taking into consideration the lessons learned from the State Safety Programme Implementation Assessments (SSPIAs).

[2] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

[3] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom.

Accident investigation reports

1.9 The Conference reviewed AN-Conf/14-WP/73, presented by the International Air Transport Association (IATA), International Business Aviation Council (IBAC) and the International Federation of Air Line Pilots' Associations (IFALPA) , on challenges faced by some State accident investigation authorities to promptly complete investigations into accidents and serious incidents and issue a final report in accordance with the existing provisions in Annex 13 – *Aircraft Accident and Incident Investigation*. The Conference recognized the risk to the global aviation system when safety lessons learned from investigations are not drawn. In this context, the Conference acknowledged the ongoing work by ICAO and highlighted the need to further assist States in building capacity for accident investigation. While noting the challenges, the Conference reiterated the urgency for State accident investigation authorities to investigate and report on accidents in a timely manner.

Resilience of the air navigation system

1.10 In reviewing AN-Conf/14-WP/75, Revision No. 1 presented by IATA and IBAC, supported by the International Federation of Air Traffic Controllers' Associations (IFATCA), the Conference noted that airspace disruptions have increased in recent years with airlines continuing to face challenges impacting efficient operations around airspace that are no longer available for civil aviation, sometimes for extended periods. The Conference commended the measures undertaken by States and stakeholders responding to airspace disruptions as well as the efforts of contingency coordination teams (CCTs) in managing and mitigating disruptions. The Conference also recognized the need for additional global guidance on managing disruptions and returning to normal operations. The Conference urged States to share advance information related to disruptions and to implement airspace optimization initiatives, such as air traffic flow management, flexible use of airspace and civil-military cooperation.

1.11 Information papers provided by: Brazil (AN-Conf/14-WP/166); Canada (AN-Conf/14-WP/198); Canada and co-sponsored by Australia (AN-Conf/14-WP/108); China (AN-Conf/14-WP/186); Malaysia (AN-Conf/14-WP/160); United States and co-sponsored by Australia (AN-Conf/14-WP/105); Uruguay with the support of 20 Latin American Civil Aviation Commission (LACAC) Member States[4] of (AN-Conf/14-WP/154); and International Society of Air Safety Investigators (ISASI) (AN-Conf/14-WP/31) were noted.

1.12 As a result of the discussion, the Conference agreed on the following recommendation:

Recommendation 1.1/2 – Resilience of the air navigation system

That States:

a) implement airspace optimization initiatives covered by ICAO provisions, such as air traffic flow management, flexible use of airspace and civil-military cooperation;

b) share advance information related to anticipated disruptions; and

that ICAO:

c) together with States and industry, develop global guidance on air traffic management contingency management, including the recovery phase, as well as regional frameworks, to support the implementation of Annex 11 — *Air Traffic Services*.

[4] Argentina, Aruba, Belize, Bolivia, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

Agenda Item 1: Update on the ICAO 2023-2025 Business Plan and long-term strategic planning
1.2: Strategic alignment of Global Plans for performance improvement

1.13 This sub-agenda item introduced the work undertaken for the strategic alignment of Global Plans, with a particular focus on the *Global Aviation Safety Plan* (GASP, Doc 10004) and the *Global Air Navigation Plan* (GANP, Doc 9750), for performance improvement. Discussions on proposals for the revision of specific content in the GASP and GANP were covered under sub-agenda items 2.3 and 3.3, respectively.

Alignment of Global Plans

1.14 The Conference reviewed AN-Conf/14-WP/4, presented by the Secretariat, which contained proposals for recommendations based on the work of the Global Plans Task Force, as well as subsequent actions taken by the appropriate expert group(s), as part of the revision of both Global Plans which will be presented to the 42nd Session of the ICAO Assembly.

1.15 The Conference reviewed the following working papers: AN-Conf/14-WP/55, presented by Hungary on behalf of the European Union and its Member States[5], the other Member States of ECAC[6], EUROCONTROL, and Canada, co-sponsored by the United Arab Emirates, Egypt and Libya; and AN-Conf/14-WP/147, presented by the Republic of Korea.

1.16 The Conference agreed with the changes proposed for the enhanced strategic alignment of Global Plans, as outlined in the Secretariat working paper (AN-Conf/14-WP/4). The Conference expressed support for AN-Conf/14-WP/147, noting the importance of data collection, processing, storage, reporting and protection schemes. It agreed, in principle, for the need to work towards a common performance framework (i.e., consisting of the long-term integration of a single set of indicators), in line with the recommendations of the Global Plans Task Force; revise the roles and responsibilities of key aviation stakeholders and ICAO; revise the process for Global Plans' development; and define the respective scopes and time horizons in each Global Plan. These should be considered for the relevant portions of the 2026-2028 edition of the GASP and the eighth edition of the GANP.

1.17 The Conference recognized the need to ensure the proper scope and membership of the appropriate expert group(s) actively engaging in alignment efforts, and agreed to refer the proposals in AN-Conf/14-WP/55 to the appropriate existing expert group(s).

1.18 The Conference noted the progress made thus far and agreed on the need to continue focusing efforts on the alignment of the Global Plans, as appropriate, while taking into account the differing nature and specificities of the domain of each Global Plan, and including the *Global Aviation Security Plan* (Doc 10118, GASeP). This included, primarily: the timely inclusion of innovation in the Global Plans, fostering a proactive approach to managing aviation safety, security and air navigation; improving the adaptability of plans in a rapidly changing environment; the need for further capacity building and assistance programmes to better address the integrated and performance-based evolution of air transport; the need to ensure consistency in global and regional aviation planning; and the importance of relevant data collection and analysis to monitor performance globally. The Conference agreed that ICAO should promote a more integrated, collaborative approach to managing various types of aviation risks, for the 2029-2031 edition of the GASP and the ninth edition of the GANP, where appropriate.

1.19 The Conference noted the differing presentation methods of the GASP and GANP (as an electronic document and a web portal, respectively) and highlighted the need to facilitate cross-referencing between both Global Plans.

[5] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

[6] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom.

Regulatory harmonization

1.20 The Conference reviewed AN-Conf/14-WP/114, presented by Costa Rica, regarding creating effective regulatory harmonization to reflect changes and advances in the latest business models of civil aviation authorities. The Conference noted the ongoing work of ICAO in the areas covered by AN-Conf/14-WP/114 and discussed the need to ensure consistency with the rights, obligations and responsibilities of States. It agreed to refer the proposals to the appropriate expert group(s), for further consideration.

1.21 Information papers provided by: Colombia (AN-Conf/14-WP/141, AN-Conf/14-WP/144 and AN-Conf/14-WP/145); Uruguay and supported by 19 LACAC Member States[7] (AN-Conf/14-WP/153); and EUROCAE and RTCA (AN-Conf/14-WP/197) were noted.

1.22 As a result of the discussion, the Conference agreed on the following recommendation(s):

Recommendation 1.2/1 – Work towards enhanced alignment of the Global Aviation Safety Plan and the Global Air Navigation Plan

That States:

a) agree, in principle, with the incorporation of the following updates into the relevant portions of the 2026-2028 edition of the Global Aviation Safety Plan and the eighth edition of the Global Air Navigation Plan:

1) removal of duplicate indicators from the respective Plans, as part of the longer-term work towards building a common performance framework for all Global Plans, and containing a comprehensive set of indicators;

2) revision of the roles and responsibilities of key aviation stakeholders and ICAO to align the content;

3) revision of the process for Global Plans' development, including how the Plans input into the work programme of ICAO;

4) definition of the respective scopes (i.e., types of operations addressed) and time horizons (i.e., the final target date) in each Global Plan;

b) foster collaboration between the Global Plans and the appropriate expert group(s); and

c) agree that further consideration of a more integrated, collaborative approach to managing various types of aviation risks, be considered for the 2029-2031 edition of the GASP and the ninth edition of the GANP, where appropriate;

that ICAO:

d) take into consideration input from the Conference regarding proposals for enhanced strategic alignment of the Global Plans for subsequent inclusion in the GASP and GANP, while taking into account the differing nature and specificities of the domain of each Global Plan; and

e) develop guidance on how the Global Plans will support each other.

[7] Argentina, Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, and Venezuela (Bolivarian Republic of).

Agenda Item 1: Update on the ICAO 2023-2025 Business Plan and long-term strategic planning
1.3: Evolution of the Technical Commission of the ICAO Assembly

1.23 The Conference reviewed AN-Conf/14-WP/5, presented by the Secretariat, on the need to continue the transition initiated by the ICAO Council, on request of the ICAO Assembly during its past Sessions, to further increase the efficiency and effectiveness of the Assembly.

1.24 The Conference broadly supported the intent of the paper in ensuring the effectiveness and efficiency of the Technical Commission. The Conference expressed concern regarding the sovereignty of the Assembly and the equal opportunity for States to contribute to the discussion on the technical work of the Organization. The Conference recognized that not all States had the opportunity to participate in the work of panels and noted that such work should not be excluded from the discussions of the Technical Commission of the Assembly. The Conference supported the need for the Technical Commission to have a more focused agenda, taking into account recommendations of divisional-type meetings, and a streamlined process, and agreed that this should be done with the wider context of the Assembly in mind. The Conference agreed that improved engagement with States and international organizations should be put in place to ensure opportunities for a more inclusive preparation. The Conference noted the benefit of the lessons learned from the current conference, particularly with respect to the time spent in introducing papers and the appropriate designation of working papers. The Conference agreed that further work was required to adequately define the scope of the Technical Commission noting the need to strike a balance between efficiency and the ability of States to provide direction on specific issues within the technical work programme of the organization. As a result, amendments to the recommendations were made and the matter will be subject to further study.

1.25 As a result of the discussion, the Conference agreed on the following recommendation:

Recommendation 1.3/1 – Evolution of the ICAO Assembly Technical Commission

That States:

a) prepare their participation, including the submission of working papers for the Technical Commission of the 42nd Session of the Assembly, with a particular focus on matters related to the Global Aviation Safety Plan, the Global Air Navigation Plan, new Assembly Resolutions and amendments to existing Resolutions; and

that ICAO:

b) prepare the draft agenda for the Technical Commission at the 42nd Session of the Assembly with a view to enhancing the efficiency of the Assembly including considering the lessons learned from the Technical Commission of the 41st Session of the ICAO Assembly;

c) study the options for the evolution of future Technical Commissions taking into account the sovereignty of the Assembly and the need to secure equal opportunity for States to contribute to the technical work of ICAO;

d) develop options for the evolution and scope of the Technical Commission within the wider context of the efficiency and effectiveness of the Assembly; and

e) consider presenting a working paper to the 42nd Session of the ICAO Assembly on the options for the evolution of future Technical Commissions.

— END —

AN-Conf/14-WP/212
30/8/24

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, 26 August to 6 September 2024

REPORT OF THE COMMITTEE ON AGENDA ITEM 2

The attached report has been approved by the Committee for submission to the Plenary.

Mr. Padhraic Kelleher
Committee Chairperson

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder[1].

[1] (12 pages)

Agenda Item 2: Timely and safe use of new technologies

2.1: Evolving aircraft technologies contributing to LTAG

2.1 The Conference reviewed AN-Conf/14-WP/6, presented by the Secretariat, concerning future aerodromes to accommodate new aircraft technologies. The Conference noted that integration of new aircraft technologies may have an impact on various aspects of aviation disciplines, among which aerodrome compatibility is an essential element. New aircraft technologies, such as sustainable aviation fuel-powered, hydrogen-powered, electric and hybrid aircraft and modified aircraft dimensions would have a major impact on aerodrome infrastructure and operational procedures, including those for aerodrome rescue and firefighting, and ground handling. The Conference agreed that ICAO, States and industry should work together to plan for the safe and timely integration of these new technologies into aerodromes, to assist in achieving the ICAO long-term aspirational goal (LTAG). In this regard, the Conference emphasized the role of ICAO in the development of a standardization roadmap.

Electric vertical take-off and landing, and hybrid aircraft operations

2.2 The Conference reviewed AN-Conf/14-WP/148, presented by the Republic of Korea, and AN-Conf/14-WP/37, presented by the United Arab Emirates, relating to advanced air mobility (AAM) and the integration and operation of electric and hybrid aircraft.

2.3 The Conference broadly supported the importance of Standards and guidance material to ensure the safe integration of new technologies such as electric and hybrid propulsion aircraft, and recognized the experiences of States in implementing such technologies as important to the continuation of this work. The Conference was informed that the ICAO work programme already included some elements for the development of Standards for the integration of electric and hybrid propulsion into legacy aircraft. However, it agreed that an assessment of the work programme would help identify additional elements that need to be considered to accommodate the unique requirements of electric and hybrid aircraft. It was also agreed to provide relevant material from the working papers to the appropriate expert group(s) working on early implementation guidance for electric and hybrid operations, including any air traffic management (ATM) considerations.

2.4 The Conference agreed on the importance of States using regulatory sandboxes in performing real-world data collection and analysis to support the development of robust regulatory frameworks, where appropriate. The Conference further supported the development and implementation of public awareness and engagement programmes related to AAM to address the social acceptance considerations.

Contributions of industry towards meeting the long-term aspirational goal

2.5 AN-Conf/14-WP/32, presented by Iran (Islamic Republic of), provided a review of technologies that could be leveraged to support LTAG and highlighted the need for effective collaboration to maximize the potential benefits of these new technologies. AN-Conf/14-WP/90, presented by Japan, further highlighted the need to achieve the maximum possible progress on implementing aviation in-sector CO_2 emissions reduction using new technologies, operations and fuels. The Conference noted the importance of sharing experiences, collaborating to support the safe and timely integration of new aircraft technologies contributing to LTAG, the development of Standards, where necessary, and adapting operations to the impact of global climate change.

2.6 AN-Conf/14-WP/53, presented by Airports Council International (ACI) and co-sponsored by Japan, outlined the challenges faced due to climate change, which could impact aerodrome and flight operations. The Conference supported the need for such considerations to be included in the development of ICAO provisions, but cautioned that careful consideration should be given to retroactive actions towards existing aircraft requirements

and aerodrome infrastructure. The Conference noted the ongoing efforts of the Conference on Aviation Environmental Protection (CAEP) related to the climate risk assessment, adaptation, and resilience topics and noted that guidance had already been developed on this topic to help States and aviation organizations, including airports to adapt and build resilience against climate change risks.

2.7 The Conference reviewed AN-Conf/14-WP/52, presented by the Air Transport Action Group (ATAG), ACI, Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), International Business Aviation Council (IBAC) and International Coordinating Council of Aerospace Industries Associations (ICCAIA), which provided an overview of the industry efforts to meet the LTAG. The Conference welcomed the report on the actions taken and the associated information provided, and expressed support for further collaboration in this area. Continued support for the development of the Standardization Roadmap was also expressed.

2.8 Information papers provided by: China (AN-Conf/14-WP/180 and AN-Conf/14-WP/185); Japan (AN-Conf/14-WP/95); the United Arab Emirates (AN-Conf/14-WP/123); ICCAIA (AN-Conf/14-WP/22, AN-Conf/14-WP/23, AN-Conf/14-WP/24 and AN-Conf/14-WP/28), ACI and ICCAIA (AN-Conf/14-WP/25); and IATA and IBAC (AN-Conf/14-WP/79) were noted.

2.9 As a result of the discussion, the Conference agreed on the following recommendation:

Recommendation 2.1/1 – Evolving aircraft technologies contributing to the long-term aspirational goal

That States:

a) working with industry, assess the compatibility of existing aerodrome infrastructure, systems and operational procedures with the upcoming new aircraft technologies and identify the changes that would be required to achieve full integration;

b) in collaboration with industry and academia, collect and share information and experience with ICAO on the possible impact of new aircraft technologies on the global aviation system, including aerodrome infrastructure, new energy infrastructure, aircraft performance and characteristics and flight operations;

c) initiate planning for aerodrome infrastructure and operational changes, where necessary, to integrate new aircraft technologies and with consideration to the economic impact as well as potential climate change impacts;

d) use regulatory sandboxes, where appropriate, to facilitate the collection and analysis of real-world data to support the development of harmonized, robust regulatory frameworks aligned with ICAO guidance; and

e) develop comprehensive public awareness and engagement programmes regarding benefits, safety and environmental advantages of new and emerging technologies such as electric -powered aircraft;

that ICAO:

f) work with States and industry to analyse, identify and plan for global provisions, where necessary, to facilitate the safe and timely integration of new aircraft technologies at aerodromes and other relevant aviation domains; and

g) when developing provisions related to aerodrome operations and infrastructure, consider where necessary the impact of climate change on the aviation system.

Agenda Item 2: Timely and safe use of new technologies
2.2: Addressing safety risks related to evolving aviation technologies

2.10 The Conference reviewed AN-Conf/14-WP/7, presented by the Secretariat, which highlighted the impact of new and emerging aviation technologies and concepts on the aviation system. The Conference supported the importance of industry collaboration to facilitate the safe introduction of these new technologies into the existing Standards and Recommended Practices (SARPs) and proposed that better ways of engaging with aviation innovators be developed. It also proposed that such new and evolving technologies and concepts that have global application and that were mature, be integrated with minimum changes to existing established requirements, and prioritizing anticipated safety benefits when contemplating retrofit. The Conference also agreed that new safety risk management methodologies, based on systems-thinking, should be considered to support evolving aviation technologies and concepts as they are developed.

Global navigation satellite system interference

2.11 In considering the effects of global navigation satellite system (GNSS) radio frequency interference (RFI), the Conference reviewed: AN-Conf/14-WP/63, presented by Hungary on behalf of the European Union and its Member States[2], the other Member States of the European Civil Aviation Conference (ECAC)[3] and the European Organisation for the Safety of Air Navigation (EUROCONTROL); AN-Conf/14-WP/151, presented by the Republic of Korea; AN-Conf/14-WP/118, presented by Singapore and co-sponsored by Japan, Malaysia, the Philippines, Thailand and Viet Nam and the Flight Safety Foundation; and AN-Conf/14-WP/76, presented by IATA, IBAC, ICCAIA, the International Federation of Air Line Pilots' Associations (IFALPA), International Federation of Air Traffic Controllers' Associations (IFATCA) and International Federation of Air Traffic Safety Electronics Associations (IFATSEA).

2.12 The Conference expressed wide support for the proposals and voiced significant concerns with the recent escalation of GNSS jamming and spoofing, and the significant safety risk it poses to civil aviation operations, particularly on areas surrounding conflict zones. The Conference recalled the need for States to abide by the measures adopted under the International Telecommunication Union (ITU) Constitution and Convention and the ITU Radio Regulations to reduce, where possible, the likelihood of such interference and to notify aviation authorities, regulators and air navigation services providers regarding any intentional GNSS interference activity.

[2] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden

[3] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom

2.13 The Conference also recommended that States develop regional GNSS RFI reporting procedures through the planning and implementation regional groups, leveraging the existing guidance material contained in the *Global Navigation Satellite System (GNSS) Manual* (Doc 9849) to raise awareness of geographic areas of GNSS interferences and to use this information in the context of planning contingency operations.

2.14 The Conference was informed that work was ongoing within ICAO to develop a concept of operations for next generation equipment functions to enable an aircraft on-board detection of GNSS RFI and the provision of a status downlink to air traffic control units. Furthermore, it encouraged States to consider deploying monitoring and reporting mechanisms for GNSS RFI events. The Conference noted the ongoing work to develop a related update to the GANP navigation systems Aviation System Block Upgrade thread.

2.15 The Conference requested ICAO to: continue assessing the impact of GNSS interference on aviation safety and continuity of civil aviation operations; define adequate mitigation measures while reminding States of their obligations; and to develop guidance material to facilitate, to the extent feasible, the exchange of GNSS RFI information through a centralized repository, as well as the notification about GNSS harmful interference from military authorities to civil aviation, and additional NOTAM codes for GNSS interference events.

2.16 Considering the impact of GNSS RFI on aircraft in-flight, the Conference agreed with the proposal for States to work with aircraft and avionics manufacturers on providing further guidance to maintain safe and efficient aircraft operations in case of disruption caused by GNSS RFI. It also agreed to consider how aircraft systems may be made more resilient to RFI events, and ensure that GNSS navigation capability is resumed as quickly as possible.

Navigation infrastructure and contingency planning

2.17 The Conference also discussed rationalization of existing navigation infrastructure and the need for contingency planning, particularly in respect of GNSS outages. The discussion was facilitated by: AN-Conf/14-WP/120, presented by Cameroon; AN-Conf/14-WP/61, presented by Hungary on behalf of the European Union[1] and its Member States, the other Member States of ECAC[2], EUROCONTROL and Singapore; and AN-Conf/14-WP/78, presented by IATA, IFATCA, ICCAIA, IFALPA, IFATSEA and IBAC.

2.18 The Conference agreed on the importance of establishing and maintaining a sufficient network of conventional navigation aids, supported by very high frequency omnidirectional radio range, distance measuring equipment and instrument landing system facilities, to ensure operational safety as well as sufficient airspace capacity during times of GNSS interference. Considering the need to phase out legacy navigation systems, the Conference agreed that the removal of such systems should take into account the need for effective GNSS RFI mitigation, and that aircraft minimum equipage lists would need to be updated to reflect this requirement.

2.19 The Conference was informed that work was ongoing within ICAO on developing an implementation package (i.e., iPack for mitigation of GNSS RFI) to assist States in managing GNSS RFI incidents and to ensure continued, safe and regular provision of air navigation services during disruptions caused by GNSS RFI.

2.20 The Conference requested ICAO to continue awareness activities on GNSS RFI and noted the planned regional workshops.

Unmanned aircraft systems technologies

2.21 The Conference reviewed: AN-Conf/14-WP/83, presented by the African Civil Aviation Commission (AFCAC) on behalf of 54 Member States[4]; AN-Conf/14-WP/67 and Corrigendum No. 1, presented by China; AN-Conf/14-WP/140, presented by Colombia; and AN-Conf/14-WP/130, presented by Saudi Arabia, which discussed unmanned aircraft systems (UAS) operations and UAS traffic management (UTM). While noting that work in these areas was ongoing as part of the assessment of the AAM ecosystem and the gap analysis of the work to be done by ICAO, the Conference expressed its support for the approach taken by the Organization and a strong ICAO leadership but cautioned against premature development of provisions. The Conference agreed that the content of these working papers be referred to the appropriate expert group(s) for further consideration, taking into account the outcomes of the Conference discussions.

2.22 In considering the integration of UAS into the air navigation system, the Conference noted ongoing work with respect to UAS training, capacity building and skills enhancement, and the development of UTM guidance material. It was agreed that the working papers would be provided to the appropriate expert group(s) for their consideration. The Conference supported the development of harmonized regional regulatory frameworks and interoperable systems to ensure effective integration of UAS, as well as an integrated, rather than segregated, airspace approach for UAS, where appropriate.

2.23 With regard to the need for additional guidance on the use of UAS for flight inspection activities, the Conference noted the ongoing work and the suggestion to include other aerodrome inspection activities. The Conference agreed to provide the contents of the working paper to the appropriate expert groups for their consideration.

2.24 Furthermore, the Conference recalled Assembly Resolution A39-22: *Formulation and implementation of Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) and notification of differences* that instructed the ICAO Council to utilize, to the maximum extent appropriate and subject to the adequacy of a verification and validation process, the work of other recognized standards-making organizations. Consequently, the proposals to develop technical standards, contained in AN-Conf/14-WP/140, might be better addressed by such organizations.

Electric vertical take-off and landing and advanced air mobility technologies

2.25 The Conference reviewed AN-Conf/14-WP/137, presented by Brazil, which discussed electric vertical take-off and landing (eVTOL) certification, AN-Conf/14-WP/92, presented by Japan, which discussed broader considerations related to eVTOL and AN-Conf/14-WP/146, presented by the Republic of Korea, which discussed the safety considerations related to AAM. It was recalled that the work on AAM emanated from the 41st Session of the ICAO Assembly with the objective to assess the entire AAM ecosystem and perform a gap analysis. The Conference supported that the development of SARPs for eVTOL should not advance prematurely, but only after the completion of the ongoing AAM ecosystem assessment and gap analysis.

2.26 The Conference expressed its support and agreed on the approach taken by ICAO to address AAM, as well as the importance of a global and holistic approach on AAM. It also acknowledged the importance for States

[4] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

and ICAO to monitor ongoing activities related to AAM, including eVTOL, and to share information, challenges and best practices.

2.27 The Conference also agreed on the need to provide guidance on identifying hazards and managing safety risks related to emerging issues to safely implement eVTOL operations and other AAM-related activities.

Other new and emerging technologies

2.28 The Conference reviewed AN-Conf/14-WP/56, presented by Hungary on behalf of the European Union and its Member States[5], the other Member States of ECAC[6], EUROCONTROL, Canada and the United States, on managing interacting aviation risks. The Conference expressed its strong support and interest for this subject, noting that work in this area within ICAO would soon commence. It also agreed to forward the contents of the working paper and the outcomes of the discussion, to the appropriate expert group(s) to allow for these to be properly examined.

2.29 The Conference reviewed AN-Conf/14-WP/65, presented by China, and noted the challenges associated with constructing high elevation aerodromes such as the site selection and design elements. The Conference agreed to refer the working paper to the appropriate expert group(s) for consideration.

2.30 The Conference reviewed AN-Conf/14-WP/66, presented by China, which discussed radiotelephony communication proficiency in non-routine situations for non-native English speakers. The Conference recalled that the language proficiency requirements contained in Annex 1 – *Personnel Licensing*, were applicable to the use of both phraseologies and plain language. The Conference also recalled that Annex 10 – *Aeronautical Telecommunications*, Volume II – *Communication Procedures including those with PANS status* and *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) provided phraseology-related provisions. Noting that scenario-based training methods could benefit the aviation community, the Conference agreed to refer work on this issue to the appropriate expert group(s) for further consideration.

2.31 The Conference reviewed AN-Conf/14-WP/86, presented by AFCAC on behalf of 54 Member States[7], noting the challenges and recognizing the successful collaboration agreement made by AFCAC States regarding the implementation of satellite-based augmentation systems in Africa.

2.32 The Conference reviewed AN-Conf/14-WP/106, presented by Canada and co-sponsored by Australia, Brazil, Japan, New Zealand, the United Kingdom and IATA, on the topic of pilot upper age limit. The Conference acknowledged the ongoing work, emphasized the need for robust safety cases supported by scientific data and agreed to refer AN-Conf/14-WP/106 to the appropriate expert group(s). Additionally, the Conference urged States to respond to the recently issued survey to States (ICAO State Letter AN 5/16.1-24/77).

[5] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden

[6] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom

[7] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

2.33 The Conference reviewed AN-Conf/14-WP/116, presented by the International Transport Workers' Federation (ITF), which emphasized that any potential changes to Annex 1 — *Personnel Licensing* to enable system-based air traffic control officer (ATCO) licensing would need to maintain or improve aviation safety. The Conference broadly supported the potential of system-based ATCO licensing but noted that a careful and balanced approach would be necessary to ensure that there would be no negative safety impacts from introducing this approach. The Conference was informed that ATCO licensing was on the work programme and agreed to refer the working paper to the appropriate expert group(s) for further consideration. The Conference further noted that the minimum and maximum age limits of ATCOs should also be considered by the appropriate expert group(s).

2.34 The Conference reviewed AN-Conf/14-WP/150, presented by the Republic of Korea and agreed on the need to address the challenges associated with hazardous lighting in the vicinity of aerodromes. It also agreed on the need to develop strategies for the assessment and management of hazardous lights in evolving airport environments to enhance aviation safety and sustainability.

2.35 Information papers provided by: Brazil (AN-Conf/14-WP/167); France and the European Space Agency (ESA) (AN-Conf/14-WP/196); Germany (AN-Conf/14-WP/16); Hungary (AN-Conf/14-WP/59); Japan and co-sponsored by Philippines, Thailand, and Airports Council International (AN-Conf/14-WP/99); Malaysia (AN-Conf/14-WP/161); Spain (AN-Conf/14-WP/163); United Arab Emirates (AN-Conf/14-WP/36, AN-Conf/14-WP/122, AN-Conf/14-WP/168 and AN-Conf/14-WP/170); United States and co-sponsored by Australia (AN-Conf/14-WP/102); United States (AN-Conf/14-WP/201); Flight Safety Foundation (AN-Conf/14-WP/164); ICCAIA and IFALPA and co-sponsored by IBAC (AN-Conf/14-WP/26) and IFATSEA (AN-Conf/14-WP/172) were noted.

2.36 As a result of the discussion, the Conference agreed on the following recommendations:

Recommendation 2.2/1 – Addressing safety risks related to new and evolving aviation technologies and concepts

That States:

a) enhance the sharing and exchange of information, challenges, regulatory approaches and best practices with appropriate ICAO expert groups, symposia and conferences regarding the safe introduction of new and evolving aviation technologies and concepts;

b) and industry, recognize the need for new and evolving aircraft to comply with the existing provisions to ensure the safety of international air navigation, and identify and implement measures necessary to facilitate the safe and timely integration of new and evolving aviation technologies and concepts;

c) in coordination with industry, engage in collective efforts to address the emerging challenges posed by hazardous lighting in the vicinity of aerodromes, and develop and implement strategies for assessing and mitigating the associated risks; and

d) develop, through appropriate regional mechanisms, harmonized regional regulatory frameworks and interoperable systems to ensure effective integration of unmanned aircraft systems, where appropriate;

that ICAO:

e) along with States and industry, identify how to better engage with aviation innovators in order to benefit from a wider range of experience and expertise in addressing the safe introduction of new and evolving aviation technologies and concepts;

f) support the safe integration of mature technologies and concepts of global interest by developing Standards and Recommended Practices, when necessary, and with minimal required changes to the existing provisions to facilitate global integration;

g) develop guidance to support States in identifying hazards and managing safety risks related to emerging issues in order to safely implement advanced air mobility, including electric vertical take-off and landing operations;

h) consider how hazard identification and risk assessment methodologies and tools based on systems-thinking may be used to further support safety risk management and address the interaction between the different types of risks encountered across the various domains (safety, security, facilitation, environment, economic, etc.) through the involvement of the appropriate ICAO expert groups and to foster collaboration across the different domains; and

i) develop guidance for managing the risks associated with hazardous lights in airport environments.

Recommendation 2.2/2 – Addressing global navigation satellite system interference and contingency planning

That States:

a) ensure that effective global navigation satellite system radio frequency interference mitigation measures are implemented, based on measures developed by ICAO and industry, including the need to maintain a sufficient network of conventional navigation aids to ensure operational safety as well as sufficient airspace capacity during times of global navigation satellite system interference;

b) through the mechanism of the planning and implementation regional groups, develop regional global navigation satellite system reporting mechanisms to raise operational awareness of affected geographical areas, to the extent feasible, as described in the *Global Navigation Satellite System (GNSS) Manual* (Doc 9849);

c) work with industry to identify means to make aircraft systems more resilient to radio frequency interference events, and to provide guidance on detecting global navigation satellite system jamming or spoofing and maintaining safe and efficient aircraft operation in case of global navigation satellite system anomalies; and

d) review aircraft minimum equipage lists to ensure compatibility with States' implemented minimum operational networks.

that ICAO:

e) continue to assess the impact of global navigation satellite system interference on aviation safety and continuity of civil aviation operations and define adequate mitigation measures, while reminding States of their obligations;

f) develop a standardized implementation package to assist and guide States in implementing effective global navigation satellite system radio frequency interference mitigation measures, including optimization and rationalization of conventional navigation aids, commensurate with their local conditions, to ensure continuity in the provision of air navigation services;

g) develop guidance on GNSS interference information exchange and civil-military coordination in relation to harmful interference to global navigation satellite system(s) originated or detected by military authorities; and

h) develop recommendations for globally harmonized minimum aircraft equipage lists to ensure that provided navigation infrastructure can be used by airspace users in line with available air traffic services.

Agenda Item 2: Timely and safe use of new technologies
2.3: 2026-2028 edition of the Global Aviation Safety Plan (GASP)

2.37 The Conference reviewed AN-Conf/14-WP/8, presented by the Secretariat, containing proposals for the evolution of the GASP, including the list of global safety issues for inclusion in the draft 2026-2028 edition of the GASP; the update of the GASP goals and targets; as well as the review of the GASP structure, related guidance material and tools, for agreement in principle, by the Conference.

Global organizational challenges

2.38 The Conference reviewed the following working papers on the draft 2026-2028 edition of the GASP, and specifically on global organizational challenges: AN-Conf/14-WP/97, presented by Japan and co-sponsored by Australia, the Philippines, Thailand and ACI; and AN-Conf/14-WP/109, presented by Canada and co-sponsored by North American, Central American and Caribbean Contracting States[8] and South American Contracting States[9] Regions.

2.39 The Conference agreed on the need to continue evolving the GASP, addressing global organizational challenges to improve aviation safety across all regions, including: the need for States and industry to share best practices to strengthen safety culture, notably in relation to safety promotion and data protection; foster collaborative approaches and sharing programmes (such as, collaborative safety teams) that strengthen collaboration

[8] Antigua and Barbuda, Bahamas, Barbados, Belize, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago and United States.

[9] Argentina, Bolivia (Plurinational State of), Brazil, Chile Colombia, Ecuador, Guyana, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of).

at regional and national levels; and expand the use of industry safety assessment and safety data sharing programmes.

Global operational safety risks

2.40 The Conference reviewed the following working papers on the draft 2026-2028 edition of the GASP, and specifically on global operational safety risks: AN-Conf/14-WP/19, presented by Brazil, Singapore, the United Kingdom, ACI, CANSO, Flight Safety Foundation, IATA, IFALPA and IFATCA; AN-Conf/14-WP/91, presented by Japan; AN-Conf/14-WP/149 presented by the Republic of Korea; AN-Conf/14-WP/98 presented by Japan and Singapore and co-sponsored by the Philippines, Thailand, ACI and IATA; and AN-Conf/14-WP/88 presented by CANSO and IFATCA.

2.41 The Conference agreed on the need to continue focusing global efforts on runway safety, primarily the prevention of runway excursions and incursions, as well as mid-air collisions, as part of the global high-risk categories of occurrences prioritized through the GASP. Additionally, the Conference expressed its support for the inclusion of turbulence encounters as one of the additional categories of occurrences, and as part of the global operational safety risks addressed in the 2026-2028 edition of the GASP. It also recognized the need to implement mitigation strategies including the issuance and availability of updated special air-reports, further improvement of meteorological forecast for clear air turbulence, and a means for collecting and sharing turbulence-related data among States and industry.

2.42 Furthermore, the Conference agreed on the need for global efforts for the management of operational safety risks to focus on more proactive safety performance measurement and safety performance indicators beyond regulatory compliance, human factors considerations and the sharing of best practices.

2.43 The Conference noted the progress made in the ICAO Runway Safety Programme, in collaboration with the Runway Safety Programme Partners, including the publication of the second edition of the Global Runway Safety Action Plan, the Global Action Plan for the Prevention of Runway Excursions and the Global Action Plan for the Prevention of Runway Incursions.

Proposals for the 2026-2028 edition of the GASP

2.44 The Conference expressed broad support for the changes proposed for the draft 2026-2028 edition of the GASP and agreed on the need for the appropriate expert group to examine suitable means to consider the input from the Conference and the online questionnaire on the GASP update, in preparation for the subsequent endorsement of the GASP at the 42nd Session of the ICAO Assembly.

2.45 Information papers provided by: Canada and co-sponsored by Australia and the United Kingdom (AN-Conf/14-WP/107); Brazil (AN-Conf/14-WP/188); Japan (AN-Conf/14-WP/93); Venezuela (Bolivarian Republic of) (AN-Conf/14-WP/157); ICCAIA and IFALPA, co-sponsored by IBAC (AN-Conf/14-WP/27); and the International Society of Air Safety Investigators (ISASI) (AN-Conf/14-WP/31) were noted.

2.46 As a result of the discussion, the Conference agreed on the following recommendation:

Recommendation 2.3/1 – Draft 2026-2028 edition of the Global Aviation Safety Plan (GASP, Doc 10004)

That States:

a) agree to include the proposed goals and targets in the draft 2026-2028 edition of the Global Aviation Safety Plan; and

b) agree, in principle, with the changes proposed, including the selection of global high-risk categories of occurrences, for the draft 2026-2028 edition of the Global Aviation Safety Plan;

that ICAO:

c) take into consideration input from the Conference, as well as the responses from the online questionnaire on the Global Aviation Safety Plan update for the revision of the 2026-2028 edition of the Global Aviation Safety Plan, and its subsequent endorsement at the 42nd Session of the Assembly.

Recommendation 2.3/2 – Turbulence encounters as a global operational safety risk

That States:

a) share experiences and best practices related to turbulence encounters; and

b) establish mechanisms to improve the availability of air-reports, including special air-reports, especially those made routinely and containing quantitative turbulence information;

that ICAO:

c) identify means for collecting and sharing turbulence-related data among Member States and industry to actively monitor global turbulence risk;

d) consider the need for additional provisions to improve the collecting and sharing of turbulence-related data among States and industry; and

e) in collaboration with the scientific and meteorological communities, investigate ways to enhance clear-air turbulence forecasting models and narrow down areas of probability.

— END —

AN-Conf/14-WP/213
5/9/24

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, 26 August to 6 September 2024

REPORT OF THE COMMITTEE ON AGENDA ITEM 3

The attached report has been approved by the Committee for submission to the Plenary.

Mr. Padhraic Kelleher
Committee Chairperson

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder[1].

[1] (16 pages)

Agenda Item 3: Air navigation system performance improvement

3.1: Proposals to improve the efficiency of air navigation services contributing to LTAG

Airspace optimization

3.1 The Conference reviewed AN-Conf/14-WP/10, presented by the Secretariat, which brought forward an initiative to focus attention on the seamless implementation of longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere, with the objective of enhanced operational efficiency of the global air navigation system. Air traffic management (ATM) performance improvement was often hampered by the application of different separation minima across flight information region boundaries, or separation minima that are inconsistent with those typically applied across a region or sub-region. The Conference, in providing broad support for the proposal as a contribution to achieving the ICAO long-term aspirational goal (LTAG) for international aviation, noted the principal role that would be played by the planning and implementation regional groups (PIRGs), supporting collaboration and developing regional action plans to maximize the efficiency of traffic flows, as reflected in AN-Conf/14-WP/82, presented by Oman.

3.2 AN-Conf/14-WP/9, presented by the Secretariat, proposed a feasibility study to consider the potential benefits of an independent, objective and consistent air navigation efficiency audit programme. The working paper recalled that the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) and compliance-based security audit had supported the development of corrective action plans and assistance strategies that can be the basis for securing funding and prioritizing implementation projects.

3.3 The Conference expressed support on the basis that the study into the feasibility of such a programme should determine if it should take the form of an audit or some alternative mechanism, such as an "assessment" or gap analysis of the management of air traffic flows. The study should also consider: if its scope should be commensurate with the complexity of air traffic operations in each State; whether all States would necessarily need to participate; and assess how to leverage existing mechanisms already in place to support monitoring of ATM performance. In further consideration of how to establish this study, the Conference agreed that ICAO must take into account the financial and workload impact upon the Organization, avoid duplication and apply lessons learned from the USOAP and Universal Security Audit Programme (USAP).

3.4 The Conference also stressed that the study should consider how to ensure a direct basis for securing funding and prioritizing projects that support capacity development, training and the implementation and modernization of ATM infrastructures and systems, contributing to cross-regional support initiatives to help States and regions develop more robust systems for air traffic management.

3.5 The Conference further emphasized the importance of involving States and international organizations, including the Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), International Business Aviation Council (IBAC) and International Federation of Air Traffic Controllers Associations (IFATCA) in the conduct of the study and keeping them informed of its progress.

3.6 AN-Conf/14-WP/40, presented by the United Arab Emirates, and AN-Conf/14-WP/74, presented by IATA, IBAC and IFATCA, discussed establishing a framework for minimum service level procedures over oceanic and remote airspace, that would complement AN-Conf/14-WP/10 and AN-Conf/14-WP/9. The Conference agreed that while uniform application of separation minima would reduce bottlenecks and improve air navigation safety and efficiency, akin to the goals of Project 30/10, modern ATM solutions should also be applied across large portions of airspace that have similar traffic flow characteristics. These included air traffic flow management (ATFM), flexible use of airspace, free route airspace (FRA) and civil-military cooperation. The Conference

recognized that such initiatives should be based on the needs of a wide cross-section of the aviation community, which may entail sending out surveys, as necessary.

Trajectory-based operations

3.7 The Conference reviewed AN-Conf/14-WP/60, presented by Hungary on behalf of the European Union and its Member States[2], the other Member States of the European Civil Aviation Conference (ECAC)[3], the European Organisation for the Safety of Air Navigation (EUROCONTROL) and Singapore, which advocated the need for a proactively and globally orchestrated approach to the development and implementation of trajectory-based operations (TBO), addressing all ATM processes that use or have an impact on flight trajectories. The Conference then reviewed AN-Conf/14-WP/48, presented by China, Indonesia, Japan, New Zealand, the Republic of Korea, Singapore, Thailand, the United States, and CANSO, which discussed an initiative of the Asia and Pacific Region to determine pathways to realize the TBO concept. The Conference also reviewed AN-Conf/14-WP/70, presented by Brazil, China, Japan, Singapore, Thailand and the United States, which described an ongoing study on TBO performance objectives and associated key performance indicators (KPIs).

3.8 The Conference noted the benefits of TBO in improving the predictability of aircraft movement and flight efficiency, as well as in increasing utilization of available airspace and aerodrome capacity and operator flexibility. The Conference recognized that these benefits would contribute to achieving the ICAO LTAG for international aviation of net-zero carbon emissions by 2050. While acknowledging that there would be varying degrees of readiness to implement TBO in different States and regions, the Conference stressed the importance of a well-prepared and coordinated implementation of TBO to accrue more substantial and immediate benefits. Consequently, the Conference agreed on the need for ICAO to expand its work programme to better plan and synchronize the development and implementation of all relevant TBO enablers. The Conference also highlighted that while ICAO continues its effort in regional and global implementation harmonization, States and PIRGs should focus on planning and implementation of mature and relevant TBO technical enablers, such as system-wide information management (SWIM) and flight and flow – information for a collaborative environment (FF-ICE).

3.9 In discussing specific TBO enablers, the Conference also provided broad support for the proposed actions concerning the development of provisions for automated air-ground trajectory synchronization as well as the investigation of the potential evolution of service delivery policy contained in the *Global Air Traffic Management Operational Concept* (Doc 9854), which could generate the necessary incentives in support of timely transition to TBO. With respect to the recommendations for ICAO KPI guidance contained in AN-Conf/14-WP/70, the Conference agreed to refer them to the appropriate expert group(s) for consideration in progressing TBO guidance development and the *Global Air Navigation Plan* (GANP, Doc 9750) performance framework update. The Conference welcomed the initiatives of studying performance metrics applicable to TBO and highlighted the importance of active collaboration among States and industry especially on a regional level. The Conference encouraged States and industry stakeholders to share the results of these studies with ICAO through appropriate expert group(s) or the GANP change management process.

3.10 Regarding the phasing out of provisions related to the ICAO flight plan, commonly referred to as FPL2012, the Conference noted that the discussion would be concluded under Agenda Item 3.2.

Airspace classification and promoting airspace delegation opportunities

[2] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

[3] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom.

3.11 AN-Conf/14-WP/94, presented by Japan, discussed measures available to improve airspace capacity and increase fuel savings through the establishment of free route airspace (FRA). The paper, complemented by AN-Conf/14-WP/38, presented by the United Arab Emirates, noted that FRA can be facilitated by considering airspace re-configuration and collaborating with neighbouring States and regions. The Conference, in recognizing that expansion of FRA initiatives across airspace boundaries should increase operational efficiency, agreed that the question of whether additional ICAO provisions and guidance material were necessary to facilitate harmonized FRA implementation should be referred to the appropriate expert group(s) for further consideration.

3.12 AN-Conf/14-WP/39, presented by the United Arab Emirates, discussed implementation of mandatory broadcast zones as a method to improve safety in complex airspace environments. While the use of mandatory broadcasts by visual flight rules aircraft in Class G airspace differed from the airspace classification provisions in Annex 11 – *Air Traffic Services*, the Conference agreed to refer the issue to the appropriate expert group(s) for consideration in conjunction with ongoing work on the applicability and evolution of flight rules stemming from the 41st Session of the Assembly.

3.13 AN-Conf/14-WP/89, presented by CANSO, proposed the need for stronger, more structured assistance from ICAO for cross-border service arrangements that would support States considering the benefits of such arrangements, and to provide guidance on how best to establish them. These arrangements were described as: a) small airspace boundary adjustments between neighbouring States; b) a single air navigation services provider providing air traffic services over more than one State (sometimes focused on upper airspace); and c) the establishment of an entirely new entity to provide air traffic services over multiple States. The paper noted several examples of service arrangements where significant benefits had been accrued, sometimes over many decades, however, a lack of guidance hindered the replication of such centralized airspace configurations. AN-Conf/14-WP/115, presented by the International Transport Workers' Federation (ITF), acknowledged the benefits of cross-border operations of air traffic services, and that such sectorization can be dynamic or fluid. While the paper proposed the need for a framework that incorporated complementary Standards and other safeguards, the Conference recalled existing, successful delegations of airspace, being indicative of the value of the current ICAO provisions across the Annexes.

Space transport operations

3.14 The Conference reviewed working papers: AN-Conf/14-WP/58, presented by Hungary on behalf of the European Union and its Member States[4], the other Member States of ECAC[5], EUROCONTROL, and Bolivia (Plurinational State of), Chile, Costa Rica, Cuba, Ecuador, Honduras and Mexico, and co-sponsored by Egypt, Libya and the United Arab Emirates; AN-Conf/14-WP/17, presented by the United States and New Zealand, and co-sponsored by Japan and the Republic of Korea; AN-Conf/14-WP/110, presented by Chile, cosponsored by 20 Latin American Civil Aviation Commission (LACAC) Member States[6]; and AN-Conf/14-WP/72, presented by IATA, IBAC, and IFATCA. These papers outlined the need for a reprioritized work programme for the next triennium to support the growth of the higher airspace and space transport industries, enhanced global coordination for space transport operations as well as longer term objectives, such as fostering strong cooperation between space and aviation sectors. The working papers also discussed the need for the development of guidance material related to airspace integration of space operations, and the importance of understanding the re-entry of space debris and uncontrolled space objects. The Conference supported these working papers, while acknowledging that space transport operations are distinct from higher airspace operations. It also noted, for instance, that space vehicles do

[4] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

[5] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom.

[6] Argentina, Aruba, Belize, Bolivia (Plurinational State of), Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

not meet the definition of "aircraft" and, consequently, the airspace integration of such operations should be managed in separate workstreams within ICAO. The Conference recognized that the significant increase in space transport operations warranted that Member States and ICAO should address known airspace efficiency issues, including the development of appropriate guidance material. These issues included NOTAM coordination, stakeholder communication associated with specific operations but also ongoing engagement, consultation, sharing of best practices, ATFM concerns and, except for the use of telemetry data, data-sharing for real-time updates on the status of airspace. The Conference recognized the need for continued collaboration and, potentially joint events, with the Committee on Peaceful Uses of Outer Space, the United Nations Office of Outer Space Affairs (UNOOSA) and other UN agencies, as appropriate, while recognizing air law and space law are subject to different legal regimes.

Higher airspace operations

3.15 AN-Conf/14-WP/131, presented by Saudi Arabia and AN-Conf/14-WP/104, presented by the United States, called ICAO to prioritize higher airspace operations (HAO) in its work programme and include comprehensive solutions for safe separation management of aircraft as they ascend to, descend from, and operate within higher airspace.

3.16 The Conference supported the working papers recalling that they are consistent with, and provide further information to, decisions taken by the 41st Assembly and recommendations by the Thirteenth Air Navigation Conference. The Conference stressed the importance of taking a holistic approach to HAO, including a vision and global concept, as a basis for the step-by-step development of provisions for separation management, contingency planning, and for risk assessment and monitoring methodologies, including for uncontrolled descents of HAO vehicles.

3.17 The Conference reiterated the need for continued collaboration with other UN agencies, as appropriate.

Ground-based augmentation system and satellite-based augmentation system

3.18 The Conference reviewed AN-Conf/14-WP/127, presented by the Dominican Republic and co-sponsored by 19 LACAC Member States[7], which proposed to consider the inclusion of new NOTAM codes to refer to the ground segment of the ground-based augmentation system Category I, II and III. Noting that the promulgation of information related to the operational status of the system, the Conference questioned the need to amend the codes; however, it was agreed to refer this work to the appropriate expert group(s) for further consideration.

3.19 The Conference reviewed AN-Conf/14-WP/128, presented by the Dominican Republic with the support of 19 LACAC Member States[6], which highlighted the importance of the satellite-based augmentation system (SBAS) as a precise navigational tool for instrument approaches. The Conference supported the development of SBAS and encouraged further development of instrument procedures. The ongoing work related to the development of SBAS was noted and it was agreed to refer the working paper to the appropriate expert group(s) for further consideration.

Other air traffic management issues

3.20 The Conference reviewed AN-Conf/14-WP/139, presented by Colombia, calling for the development of additional regulations and Standards to support the global implementation of digital air traffic

[7] Argentina, Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

services for aerodromes (DATS) and remote towers. The Conference noted that necessary ICAO provisions and guidance material concerning DATS were being developed and agreed to refer the paper to the appropriate expert group(s). The Conference requested that the expert group(s) include in their consideration cybersecurity aspects, as well as the impact of DATS and remote towers on flight safety, cross-border and contingency operations, aircraft equipage, fuel management, and air traffic controller training and licensing. Regarding the development of Standards for the certification and validation of DATS systems suppliers, the Conference also agreed to forward the proposal to the appropriate expert group(s), while noting the early stage of development and the ongoing evolution of DATS technologies.

3.21 The Conference reviewed AN-Conf/14-WP/54 Revision 2, regarding wildlife strike risk management, presented by Australia, Azerbaijan, Brazil, Cambodia, Fiji, India, Indonesia, New Zealand, Pakistan, Philippines, Singapore, Thailand, the United Kingdom, Airports Council International (ACI), Flight Safety Foundation and IATA. The Conference agreed that opportunities for the reduction of bird and other wildlife strike hazards by applying new methodologies and technologies should be considered by experts from an appropriately wide set of disciplines to develop, as appropriate, systematic best practice guidance on wildlife hazards, risk management and flight safety. On this basis, the Conference agreed to refer the contents of the paper to the appropriate expert group(s) for further consideration.

3.22 The Conference reviewed AN-Conf/14-WP/68, presented by China, and noted the efforts taken to promote the development and implementation of airport collaborative decision-making and the sharing of their experience in this respect. The Conference agreed to refer the content of the paper, that promoted the updating of ICAO guidance, particularly the *Manual on Collaborative Air Traffic Flow Management* (Doc 9971), and the sharing of successful implementation projects, to the appropriate expert groups for further consideration.

3.23 The Conference reviewed AN-Conf/14-WP/119, presented by Japan and Singapore, which highlighted the impact of ATM operations on reducing emissions in support of LTAG. The Conference was reminded that work was already ongoing in this area, particularly in respect of a review of the guidance for continuous climb operations and continuous descent operations, and agreed to refer the content of the paper to the appropriate expert group(s) for further consideration.

3.24 Information papers provided by: Brazil (AN-Conf/14-WP/189, AN-Conf/14-WP/190, AN-Conf/14-WP/191 and AN-Conf/14-WP/192); Brazil with the support of the United States and LACAC Member States[8] (AN-Conf/14-WP/133); Chile with the support of 20 LACAC Member States[9] (AN-Conf/14-WP/111 and AN-Conf/14-WP/112); China (AN-Conf/14-WP/174, AN-Conf/14-WP/175, AN-Conf/14-WP/181, AN-Conf/14-WP/182, AN-Conf/14-WP/183 and AN-Conf/14-WP/184); China, Singapore and Thailand (AN-Conf/14-WP/69); China and Thailand and co-sponsored by Singapore (AN-Conf/14-WP/178); China and co-sponsored by the Lao People's Democratic Republic (AN-Conf/14-WP/177); the Dominican Republic with the support of 19 LACAC Member States[10] (AN-Conf/14-WP/129); South Africa (AN-Conf/14-WP/204 and AN-Conf/14-WP/205); Spain (AN-Conf/14-WP/162); the United Arab Emirates (AN-Conf/14-WP/42, AN-Conf/14-WP/43, AN-Conf/14-WP/45, AN-Conf/14-WP/46, AN-Conf/14-WP/47, AN-Conf/14-WP/169 and AN-Conf/14-WP/171); the United Kingdom (AN-Conf/14-WP/165); the United Kingdom and the United States (AN-Conf/14-WP/203); the United States (AN-Conf/14-WP/200); Uruguay with the support of 20 LACAC Member States[11] (AN-Conf/14-WP/156);

[8] Argentina, Aruba, Belize, Bolivia (Plurinational State of), Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[9] Argentina, Aruba, Belize, Bolivia (Plurinational State of), Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[10] Argentina, Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[11] Argentina, Aruba, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru and Venezuela (Bolivarian Republic of).

Venezuela (Bolivarian Republic of) (AN-Conf/14-WP/18 and AN-Conf/14-WP/30); the African Civil Aviation Commission (AFCAC) on behalf of 54 Member States[12] (AN-Conf/14-WP/85); the Air Transport Action Group (ATAG), ACI, CANSO, IATA, IBAC, International Coordinating Council of Aerospace Industries Associations (ICCAIA), IFATCA and International Federation of Air Line Pilots' Associations (IFALPA) (AN-Conf/14-WP/51); CANSO and IFATCA (AN-Conf/14-WP/35); the Central American Corporation for Air Navigation Services (COCESNA) on behalf of Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua (AN-Conf/14-WP/50); IATA (AN-Conf/14-WP/81); and IATA and IBAC (AN-Conf/14-WP/80) were noted.

3.25 As a result of the discussion, the Conference approved the following recommendations:

Recommendation 3.1/1 – Project 30/10 - Optimized implementation of longitudinal separation minima

That States:

a) within the processes of the planning and implementation regional groups, actively collaborate with neighbouring States to implement Project 30/10 – implementation of longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere;

that ICAO:

b) through the planning and implementation regional groups, develop regional action plans for the implementation of Project 30/10;

c) monitor and support inter-regional collaboration for a harmonized implementation of Project 30/10; and

d) consider other minimum service level procedures, via a framework, for implementation in oceanic and remote airspace.

Recommendation 3.1/2 – Study into the feasibility of establishing an ICAO air navigation efficiency programme

That ICAO undertake a study into the feasibility of establishing an ICAO air navigation efficiency audit programme, or other suitable initiative, involving States and international organizations throughout the study.

[12] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

Recommendation 3.1/3 – Enabling successful deployment of trajectory-based operations

That States:

a) and regions expedite the implementation of trajectory-based operations enablers that are considered mature and relevant; and

b) support ICAO in expediting its work programme on trajectory-based operations and its enablers, including the development of a plan and timeline for their implementations;

that ICAO:

c) develop and maintain an ICAO work programme addressing the full scope of trajectory-based operations;

d) develop ICAO provisions and guidance for automated air-ground trajectory synchronization; and

e) investigate the need for the evolution of service priority policy in support of trajectory-based operations implementation.

Recommendation 3.1/4 – Free route airspace

That States:

a) actively collaborate with neighbouring States to implement free route airspace;

that ICAO:

b) develop provisions and guidance material to support harmonized implementation of free route airspace, including implementation across airspace boundaries and regions.

Recommendation 3.1/5 – Delegation of responsibility for provision of air traffic services

That ICAO develop a framework to support States considering delegation of responsibility for provision of air traffic services.

Recommendation 3.1/6 – Addressing the safe integration of space transport operations into the airspace system

That ICAO:

a) work with Member States and international organizations to identify, compile and publish best practices, as necessary, related to the safe and efficient air navigation of aircraft around space transport operations; and

b) develop guidance material for air navigation services providers related to the integration of space transport operations, including NOTAM dissemination, stakeholder communication

associated with specific operations, air traffic flow management, and data-sharing for real-time updates on the status of the airspace, excluding telemetry data of launch vehicles.

Recommendation 3.1/7 – Higher airspace operations

That ICAO:

a) develop a holistic vision and global concept for higher airspace operations, including regulatory approval, coordination responsibilities and liability, for inclusion in its work programme for the next triennium; and

b) develop provisions related to the safe and efficient transit of aircraft through controlled airspace and separation management in higher airspace, including air traffic management procedures contingency planning and risk assessment and monitoring methodologies, including for uncontrolled descents of higher airspace operations vehicles.

Agenda Item 3: Air navigation system performance improvement
3.2: Phasing out legacy systems

Optimizing and/or phasing out legacy systems

3.26 The Conference reviewed AN-Conf/14-WP/96, presented by Japan, which highlighted the need for a globally defined methodology for optimizing the use of legacy systems. Recognizing challenges faced by States and the benefits of innovation in the aviation system, particularly in the areas of communications, navigation and surveillance (CNS), the Conference agreed that ICAO should consider including optimization of utilizing legacy systems in the development of the CNS technology roadmap, leveraging the CNS minimum operation network concept in a globally harmonized manner. The Conference also stressed the importance of ensuring alignment with the GANP as well as taking into account local requirements for air navigation system resilience.

3.27 The Conference reviewed AN-Conf/14-WP/41, presented by the United Arab Emirates, which highlighted the benefits of modern ATM systems over existing legacy systems, and advocated the need for phasing out legacy systems to enhance the efficiency, safety and sustainability of global air navigation. Noting that ICAO provisions concerning disruption of services and contingency planning continued to apply, the Conference encouraged States to adopt a phased implementation plan to transition to modern ATM systems. The Conference agreed on the need for a global framework to guide the transition from legacy systems, and for a knowledge-sharing platform to facilitate the exchange of best practices and lessons learned, while recalling the important role of ICAO in implementation support.

Transition to flight and flow – information for a collaborative environment services and cessation of FPL2012

3.28 The Conference reviewed AN-Conf/14-WP/11, presented by the Secretariat, which outlined the progress made in the development of global provisions and guidance to enable the elective implementation of the FF-ICE services. The paper highlighted the potential challenges associated with the prolonged mixed-mode operations of the ICAO flight plan provisions, commonly referred to as FPL2012, and FF-ICE services, and proposed 2034 as a global target date for the cessation of FPL2012. The paper also proposed channelling appropriate efforts and resources of States, industry and ICAO to accelerate the harmonized implementation of FF-ICE services.

3.29 The Conference reviewed several papers that supported and complemented the proposed actions in AN-Conf/14-WP/11, including: AN-Conf/14-WP/71, presented by the United Arab Emirates; AN-Conf/14-WP/134, presented by Brazil and supported by LACAC Members States[13]; AN-Conf/14-WP/49, presented by the Agency for Air Navigation Safety in Africa and Madagascar (ASECNA) on behalf of its 18 African Member States[14]; and AN-Conf/14-WP/77, presented by IATA, IFALPA, IFATCA and IBAC.

3.30 The Conference also recalled the following working papers presented under Agenda Item 3.1: AN-Conf/14-WP/60, presented by Hungary on behalf of the European Union and its Member States[15], the other Member States of ECAC[16] and EUROCONTROL on setting an ambitious date for cessation of FPL2012; and AN-Conf/14-WP/48, presented by China, Indonesia, Japan, New Zealand, Republic of Korea, Singapore, Thailand, the United States and CANSO, on expediting the implementation of TBO building blocks, such as FF-ICE and SWIM, to prevent a prolonged period of mixed-mode operations.

3.31 The Conference reaffirmed the significant benefits that global implementation of FF-ICE services would bring about and expressed broad support for the need to minimize the duration of mixed-mode operations. The Conference acknowledged that prolonged mixed-mode operations would require additional resources to manage the complexity of both flight plan processing systems thus impeding the take-up rate of FF-ICE services and negating expected benefits. As a result, the Conference agreed on the need to establish a global target date to terminate the mixed-mode operations. It was further agreed that the efforts of ICAO be focused on developing necessary provisions and guidance to enable the global cessation of FPL2012.

3.32 The Conference emphasized the importance of an inclusive and coordinated approach on national and regional levels for planning the transition to FF-ICE services, and the critical role that the PIRGs would play in this process. Also stressed, was the need for collaboration among States to share experiences and resources, and the necessary guidance and support from ICAO. The Conference also recognized the benefits of establishing regional focus groups, as necessary, that would be tasked to coordinate and monitor the planning and implementation of FF-ICE services and provide necessary support throughout the transition period.

3.33 Concerning the global target date for the cessation of FPL2012, the Conference expressed strong support for the year 2034, recognizing the time required for States and industry to prepare for implementation and for ICAO to amend relevant provisions and guidance. It was further agreed, recalling the No Country Left Behind initiative, that ICAO should periodically assess and report on the readiness of the global ATM community, and factor this into determining the applicability dates for proposals for amendment to ICAO provisions concerning the cessation of FPL2012.

3.34 Information papers provided by the Netherlands (AN-Conf/14-WP/158 and AN-Conf/14-WP/159) were noted.

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[13] Argentina, Aruba, Belize, Bolivia (Plurinational State of), Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay and Venezuela (Bolivarian Republic of).

[14] Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Gabon, Equatorial Guinea, Guinea Bissau, Madagascar, Mali, Mauritania, Niger, Rwanda, Senegal, Togo.

[15] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

[16] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom.

3.35 As a result of the discussion, the Conference approved the following recommendations:

Recommendation 3.2/1 – Phasing out and/or optimizing the use of legacy systems

That States:

a) adopt a phased implementation plan for transitioning to modern communications, navigation and surveillance, and air traffic management systems while maintaining a minimum operation network for the provision of resilient air navigation services;

that ICAO:

b) develop a global framework to guide Member States in phasing out and/or optimizing the use of legacy systems, ensuring consistency and interoperability;

c) consider including a methodology to optimize the utilization of legacy systems in the communications, navigation and surveillance technology roadmap, leveraging the communications, navigation and surveillance minimum operation network concept, in a globally harmonized manner;

d) establish a knowledge-sharing platform for Member States to share experiences, challenges and best practices related to the transition from legacy systems to modern air traffic management technologies; and

e) provide implementation support for the transition from legacy systems to modern air traffic management technologies.

Recommendation 3.2/2 – Transition to flight and flow – information for a collaborative environment services and cessation of ICAO 2012 flight plan by 2034

That States:

a) in support of the 2034 global cessation of the ICAO 2012 flight plan, commence the development of a national plan to transition to flight and flow – information for a collaborative environment services along with industry stakeholders;

b) include plans for the implementation of both minimum and optional flight and flow – information for a collaborative environment services in the national air navigation plans;

c) share experience and information for the implementation of flight and flow – information for a collaborative environment services;

d) and planning and implementation regional groups, consider establishing regional focus groups for coordinating the planning and implementation of flight and flow – information for a collaborative environment services and providing necessary support throughout the transition period; and

e) support and contribute to the work of their respective planning and implementation regional group and their sub-groups to develop a regional plan to transition to flight and flow –

information for a collaborative environment services on the basis of the 2034 global cessation of the ICAO 2012 flight plan;

that ICAO:

f) amend relevant ICAO provisions and guidance material to enable the 2034 global cessation of the ICAO flight plan and associated air traffic services messages;

g) through planning and implementation regional groups, provide guidance and support for the development of regional plans to transition to flight and flow – information for a collaborative environment to enable the 2034 global cessation of the ICAO 2012 flight plan;

h) support inter-regional collaboration for a harmonized implementation of and transition to flight and flow – information for a collaborative environment services;

i) monitor and support the progress of flight and flow – information for a collaborative environment services implementation and transition plan developments of States; and

j) conduct a periodic assessment and report on the readiness of the global air traffic management community for the 2034 global cessation of the ICAO 2012 flight plan.

Agenda Item 3: Air navigation system performance improvement
3.3: Eighth Edition of the Global Air Navigation Plan (GANP)

Global Air Navigation Plan development

3.36 AN-Conf/14-WP/12, presented by the Secretariat, brought forward proposals for a series of major updates to the strategic and technical levels of the seventh edition of the *Global Air Navigation Plan* (GANP, Doc 9750), which would subsequently be presented for endorsement by the 42nd Session of the ICAO Assembly, as the eighth edition. The Conference agreed, in principle, with the proposed updates to the global strategic level. Mainly, the addition of two challenges and opportunities to reflect the priority areas of the 41st Session of the Assembly, a new approach to new entrants and artificial intelligence, the mapping between the strategic and technical levels, as well as the update to the performance ambitions and conceptual roadmap.

3.37 Regarding the proposed updates to the global technical level, the Conference agreed, in principle, with the update of the environment key performance area and the resilience focus area of the GANP performance framework. The Conference also agreed that the manner in which some environmental measures are referenced in the performance objectives should be reviewed by the appropriate expert group(s). The Conference noted that the latest industry technologies had been reflected in the ASBU framework. The Conference also acknowledged the need for ICAO to continue updating the global technical level, based on the changes to the strategic level, as highlighted in AN-Conf/14-WP/132, presented by Saudi Arabia and AN-Conf/14-WP/152, presented by the Republic of Korea. Given the importance of performance management and the integration of new concepts, the Conference agreed that ICAO: streamline the performance framework considering regional needs; update the link between the ASBU and the performance framework, including the areas of environment and resilience; develop guidance material and adopt validated use cases to support the deployment and implementation of new concepts. To facilitate this task, the Conference urged all Member States that have experience with new concepts to share their experience with other States through ICAO.

3.38 To improve the understanding of the GANP's structure, context and traceability of changes between its editions, the Conference agreed on the need to develop efficient communication strategies.

3.39 The Conference noted the concerns expressed in AN-Conf/14-WP/152 regarding the development of the electronic system for the management of regional air navigation plans (ANPs), in terms of timeliness, revision transparency and historical tracking of the revision process. The Conference agreed on the need for clear revision procedures and presentation methods, while preserving the original functions of the ANP and acknowledging the challenges of exclusively using online resources as reliable reference documents. ICAO should involve all relevant stakeholders in this development and roll-out process.

3.40 AN-Conf/14-WP/33, Revision 1 and AN-Conf/14-WP/64, Revision 1, presented by Iran (Islamic Republic of), raised the challenges regarding sanctions on civil aviation, limiting Iran (Islamic Republic of) in developing their air navigation system in line with ICAO provisions and the GANP. The Conference noted that the subject of sanctions was not limited to air navigation and had been raised at previous ICAO Assemblies by several States, including Iran (Islamic Republic of). The Conference also noted that the impact of sanctions on civil aviation and the planning for improving air navigation services was beyond the mandate of the ICAO expert group(s). The Conference highlighted that the subject of sanctions was outside of the scope of the Conference and recalled that the Economic Commission, during the 41st Session of the ICAO Assembly, recognized that sanctions issues were complex, political and sensitive, and it was decided that these matters be brought to the attention of the President of the Council, whose good offices had been involved in these issues in the past.

Global Air Navigation Plan implementation

3.41 The Conference supported AN-Conf/14-WP/84 and AN-Conf/14-WP/87, presented by AFCAC on behalf of 54 Member States[17], which addressed the fragmented and non-uniform implementation of the GANP. AN-Conf/14-WP/84 emphasized the need to address the challenges that impede the implementation of air navigation efficiency improvements to effectively contribute to the achievement of the ICAO LTAG of net zero CO_2 emissions by 2050, a priority area to be reflected in the eighth edition of the GANP, as proposed in AN-Conf/14-WP/12. To address these challenges, the Conference encouraged States to take advantage of available funding sources, as well as to adopt cost effective and affordable mechanisms to address infrastructure gaps and leapfrogging. The Conference also urged ICAO to incorporate the necessary policies and guidelines, enable resource sharing, and promote the uniformity of application and mutual recognition of regulatory frameworks.

3.42 AN-Conf/14-WP/87 identified additional challenges, impeding the successful implementation of strategies outlined in the GANP, to attain a globally interoperable and seamless air navigation system. The Conference noted that ICAO should continue supporting all Member States through existing mechanisms, including regional plans and their associated programmes by providing increased training aimed at developing capacity to enhance implementation of the GANP. It was also recognized that workshops, in partnership with international organizations, would continue to be a cornerstone of educating policymakers on the importance of GANP implementation, as would the mobilization of funds for timely GANP implementation strategies, such as the Basic Building Blocks, infrastructure development and the ongoing assistance to States to develop their national ANPs to align with the regional ANPs.

[17] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

3.43 AN-Conf/14-WP/117, presented by ITF, outlined the need to develop Procedures for Air Navigation Services (PANS) and guidance material related to training of air traffic operations specialists. The Conference, while recognizing that training was an important aspect of implementation of air navigation improvements, expressed concerns that it was premature to develop PANS and guidance material for a new broad category of professionals that encompassed many unique roles and training needs. Nonetheless, the Conference noted that some of the air traffic operations specialists' roles were already addressed in PANS provisions.

3.44 Information papers provided by: Brazil (AN-Conf/14-WP/193); China (AN-Conf/14-WP/179); Saudi Arabia (AN-Conf/14-WP/194 and AN-Conf/14-WP/195); and Uruguay and 19 LACAC Member States[18] (AN-Conf/14-WP/155) were noted.

3.45 As a result of the discussion, the Conference approved the following recommendations:

Recommendation 3.3/1 — Update to the global strategic level of the seventh edition of the Global Air Navigation Plan (GANP, Doc 9750)

That States:

a) agree in principle with the addition of two challenges and opportunities, recognizing the priority areas of the 41st Session of the Assembly; the approach to the new entrants and artificial intelligence and the approach to map the strategic and technical levels, in the draft eighth edition of the Global Air Navigation Plan, to be presented for endorsement by 42nd Session of the Assembly; and

b) agree in principle with the proposed update to the performance ambitions and conceptual roadmap;

that ICAO:

c) take into consideration input from the Conference and other input arising from States, international organizations and other stakeholders in order to finalize the development of the eighth edition of the Global Air Navigation Plan for subsequent endorsement at the 42nd Session of the Assembly; and

d) develop efficient communication strategies with Member States to enhance the accessibility, visibility and traceability of revisions to the entire GANP structure and context, from strategic to technical levels, and consider the development of an integrated document as part of this approach, for future updates of the GANP.

Recommendation 3.3/2 — Update to the global technical level of the seventh edition of the Global Air Navigation Plan and its regional and national levels

That States:

a) agree in principle with the update of the environment key performance area, which will be reviewed by the appropriate expert groups, noting the ongoing work of the Committee on

[18] Argentina, Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic and Venezuela (Bolivarian Republic of).

Aviation Environmental Protection on monitoring and reporting metrics for the long-term aspirational goal 2050, covering all in-sector CO_2 emissions reductions;

b) agree in principle with the resilience focus area;

c) use, in collaboration with the regional offices, the electronic system for the management of regional air navigation plans, when available; and

d) consider the national air navigation plan template, when available;

that ICAO:

e) update the performance assessment of the Aviation System Block Upgrade framework, with the new objectives on the environment key performance area and resilience focus area;

f) continue the update of the Aviation System Block Upgrade framework and reflect the two additional challenges and opportunities proposed, recognizing the priority areas of the 41st Session of the Assembly, for the eighth edition of the Global Air Navigation Plan, to be presented for endorsement by 42nd Session of the Assembly;

g) develop and disseminate a roll-out plan for the electronic system for the management of the regional air navigation plans, including clear revision procedures and presentation methods, in coordination with all relevant stakeholders, and provide the national air navigation plan template; and

h) take into consideration input from the Conference and continue to work with States, international organizations and other stakeholders on the development of the eighth edition of the Global Air Navigation Plan for subsequent endorsement at the 42nd Session of the Assembly.

— END —

AN-Conf/14-WP/214
5/9/24

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, 26 August to 6 September 2024

REPORT OF THE COMMITTEE ON AGENDA ITEM 4

The attached report has been approved by the Committee for submission to the Plenary.

Mr. Padhraic Kelleher
Committee Chairperson

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder[1]

[1] (5 pages)

Agenda Item 4: Hyper-connectivity of air navigation system

4.1: Connected aircraft concept and associated challenges

4.1 The Conference reviewed AN-Conf/14-WP/13, presented by the Secretariat, which outlined a draft connected aircraft concept describing a framework for the use of performance-based communication links to accommodate the expected growth in demand for the extensive information exchange between the aircraft and other aviation stakeholders on the ground. The paper also highlighted the value of technical and operational validation to mature the draft concept and to identify the areas requiring further investigation to determine the need and appropriate level of standardization through ICAO provisions.

4.2 The proposed actions in AN-Conf/14-WP/13 were supported and reinforced by AN-Conf/14-WP/34 presented by Iran (Islamic Republic of); AN-Conf/14-WP/21 presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA) and Civil Air Navigation Services Organisation (CANSO) and co-sponsored by International Business Aviation Council (IBAC); AN-Conf/14-WP/20 presented by ICCAIA and CANSO, and co-sponsored by IBAC; and AN-Conf/14-WP/62, presented by Hungary on behalf of the European Union and its Member States[2], the other Member States of the European Civil Aviation Conference (ECAC)[3], the European Organisation for the Safety of Air Navigation (EUROCONTROL) and the United States and co-sponsored by the United Arab Emirates, Egypt and Libya.

4.3 The Conference further discussed a concept called "hyper-connected air traffic management (ATM)" presented in AN-Conf/14-WP/20 concerning the use of non-safety critical "off-the-shelf" air-ground communication links as an additional means to support safety-critical communications, and proposed solutions for air-ground communication infrastructure and operations, supporting air traffic services (ATS), aeronautical information service (AIS) and aeronautical operational control (AOC) presented in AN-Conf/14-WP/62.

4.4 Acknowledging the increasing demand for air-ground connectivity, the Conference recognized the urgent need for secure, scalable, cost-efficient and spectrum-efficient air-ground data links that offered a significant increase in capacity and other technical performance. The Conference also recognized the value of a carefully considered and integrated global concept on the use of additional performance-based communication links to support both safety and non-safety critical communications. The Conference underscored the importance of collaboration amongst all stakeholders throughout the process of the development, validation, and standardization of the concept, as well as certification and implementation. While noting the ongoing and planned work of ICAO, the Conference agreed on the need for further work to expand on the connected aircraft concept to incorporate related concepts.

4.5 The Conference discussed and agreed on the areas requiring further analysis as listed in AN-Conf/14-WP/13, AN-Conf/14-WP/34, AN-Conf/14-WP/21, AN-Conf/14-WP/20 and AN-Conf/14-WP/62, including cybersecurity-related matters and aeronautical frequency spectrum usage. Regarding cybersecurity, the Conference highlighted the need for further assessment of associated risks and mitigation measures in the context of the hyper-connected ATM solution. Noting the need to ensure globally continued and sustainable future use of protected aeronautical spectrum, the Conference called for a careful and holistic consideration before selecting any specific technical solution. The Conference emphasized that commercial off-the-shelf non-safety aircraft connectivity solutions, as a means to supplement aviation safety communication services, should be considered

[2] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

[3] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine, and the United Kingdom.

only after the completion of sufficient research, as well as risk and impact assessments. The need to avoid any unintended consequences to the aviation access to, and use of, frequency spectrum critical for safe aircraft operations was also strongly emphasized. The Conference, therefore, underscored the importance of close coordination with ITU as well as the need for support from appropriate expert group(s) to conduct a comprehensive analysis on aeronautical frequency spectrum usage and the potential use of commercial services in frequency bands allocated for non-safety. The Conference also agreed on the need for further evaluation and validation of the concept and for a comprehensive gap analysis to identify areas requiring ICAO provisions and guidance to support the safe, globally harmonized and interoperable implementation of the connected aircraft concept.

4.6 Concerning AN-Conf/14-WP/62, the Conference noted that several of the proposed actions would be contingent on the future work concerning the connected aircraft concept, which would integrate the hyper-connected ATM, while the rest were already on the work programme of ICAO. Consequently, the Conference agreed that the content of the paper relevant to the ongoing work of ICAO be referred to appropriate expert group(s) for consideration in progressing their respective work programmes.

4.7 Information papers provided by Brazil, supported by the United States (AN-Conf/14-WP/135); China (AN-Conf/14-WP/176); and by the United States (AN-Conf/14-WP/103 and AN-Conf/14-WP/199) were noted.

4.8 As a result of the discussion, the Conference agreed on the following recommendation(s):

Recommendation 4.1/1 –Validation, standardization and implementation of the connected aircraft concept and air-ground connectivity strategy

That States:

a) together with industry stakeholders, evaluate the technical and operational aspects to further mature and validate the draft connected aircraft concept, including further assessing the hyper-connected air traffic management solution, and provide ICAO with the results; and

that ICAO:

b) further examine:

1) the need for and implications of leveraging commercial off-the-shelf non-safety aircraft connectivity solutions as a means to supplement current and future air-ground safety critical communications for air traffic management;

2) a strategy of future aeronautical frequency spectrum usage and the possible use of commercial services in frequency bands allocated for non-safety, in close coordination with the International Telecommunication Union, including safety assessments conducted by appropriate expert group(s), in a manner which avoids unintended consequences;

3) cybersecurity risks and mitigation measures in the context of the hyper-connected ATM solution.

c) further examine other components of the connected aircraft concept, including but not limited to;

1) interoperability and communication continuity across flight information regions;

2) minimum airborne and ground infrastructures to operate in a multilink environment while maintaining interoperability;

3) end-to-end performance requirements for new functions supporting air traffic services, aeronautical information service and aeronautical operational control;

4) evolution of electronic flight bag capabilities and its impact on aircraft avionics certification and operational authorization;

5) role of the humans in the connected aircraft concept;

6) exchange, use and integration of additional information obtained from aircraft;

d) update the draft connected aircraft concept, the long-term future connectivity strategy and relevant threads of the Aviation System Block Upgrade framework in the Global Air Navigation Plan to guide the development of ICAO provisions and guidance material, as necessary, taking into account input from the Conference and the results of the States' evaluation;

e) conduct a comprehensive gap analysis to identify areas requiring ICAO provisions and guidance to support the safe, globally harmonized and interoperable implementation of the connected aircraft concept, taking into account input from the Conference; and

f) update relevant ICAO provisions and guidance material based on the updated draft connected aircraft concept and the comprehensive gap analysis above, as necessary.

Agenda Item 4: Hyper-connectivity of air navigation system
4.2: Cybersecurity and information system resilience

Cybersecurity Policy

4.9 The Conference reviewed AN-Conf/14-WP/14, presented by the Secretariat, which detailed core elements of an aviation cybersecurity framework for consideration by States and stakeholders, and called for a cross-cutting and harmonized approach at the global, regional and national levels, as well as alignment with global and regional plans.

4.10 AN-Conf/14-WP/100, presented by the United States, emphasized that cybersecurity guidance material should be developed and maintained in an agile manner to keep pace with the development of the cyber threat landscape of civil aviation.

4.11 The Conference acknowledged the importance of addressing cybersecurity in civil aviation, and the need for aviation cybersecurity guidance material that is cross-cutting, holistic and consistent across civil aviation disciplines, in coordination with other UN bodies. The Conference also supported investigating methods

for accelerating guidance material development, review and distribution to stakeholders, while ensuring that the quality of deliverables was maintained. The Conference further underscored the need for coordination and alignment with global and regional plans through existing ICAO regional and expert groups, to ensure a harmonized approach to cybersecurity that supports States and stakeholders in addressing and sharing information on cyber threats and risks to civil aviation critical infrastructure.

4.12 The Conference supported the draft Recommendations set out in AN-Conf/14-WP/14 and AN-Conf/14-WP/100 and agreed to refer the actions to the appropriate expert group(s) for consideration.

4.13 The Conference discussed AN-Conf/14-WP/136 Revision No.1, presented by Brazil, supported by 20 Members States[4] of Latin American Civil Aviation Commission (LACAC), which detailed Brazil's experience in implementing cyber information sharing through the Malware Information Sharing Platform (MISP), and highlighted the platform's benefits. The Conference was informed that ICAO had published guidance material on cyber information sharing which includes a discussion of MISP. The Conference concluded that a new expert group on this matter would not be required and agreed to refer the paper to the appropriate expert group(s).

4.14 AN-Conf/14-WP/142 presented by Colombia, requested the formation of a coordination group for cybersecurity. The Conference was informed that the creation of a cybersecurity "Point of Contact Network" to accomplish this aim is included in the ICAO cybersecurity work programme. The Conference noted that ICAO already had expert groups in place to support and coordinate the topic, and agreed to refer the paper to the appropriate expert group(s) for consideration.

4.15 The Conference discussed AN-Conf/14-WP/143, presented by Colombia, which proposed the development of guidelines for cybersecurity incident response teams (CSIRTs). In discussing the paper, the Conference was informed that the establishment and operation of a CSIRT were not within ICAO's mandate. While the Conference expressed support for the paper in general, it noted that the determination of critical infrastructure should be considered at the national level by States and other relevant stakeholders, and that the paper should be referred to the appropriate expert group(s) for consideration.

Air navigation services cybersecurity

4.16 The Conference reviewed AN-Conf/14-WP/113, presented by Chile and co-sponsored by 20 LACAC Member States[5] which invited air navigation services providers (ANSPs) to consider the broad management of cyber-related risks in an integrated manner, and to continuously improve such processes. The Conference supported the concept of integrated management of cyber-related risks and agreed to refer the paper to the appropriate expert group(s).

4.17 AN-Conf/14-WP/124, presented by Argentina and co-sponsored by 19 LACAC Member States[6] promoted the value of a harmonized regulatory framework in ATS for addressing cyber risks. The Conference, noting that the promotion of cybersecurity culture was included in the current ICAO work programme, agreed to refer the paper to the appropriate expert group(s).

[4] Argentina, Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[5] Argentina, Aruba, Belize, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[6] Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

4.18 AN-Conf/14-WP/125, presented by Argentina and supported by 19 LACAC Member States[7], highlighted the need for including cyber considerations in the management systems of ANSPs and for the development of technologies, procedures and arrangements for the safe provision of ATS and recovery from cyber incidents. The Conference noted that the development and implementation of specific technologies was not within ICAO's remit. However, it agreed on the need for measures, including appropriate competencies and skills, to be in place for recovery from cyber incidents, recognizing that cyber incidents had the potential to impact other areas beyond air traffic control. The Conference further agreed to refer the paper to the appropriate expert group(s).

4.19 Information papers provided by Argentina and supported by 21 LACAC Member States[8] (AN-Conf/14-WP/126); the United Arab Emirates (AN-Conf/14-WP/44); the United States (AN-Conf/14-WP/202); and International Federation of Air Traffic Safety Electronics Association (IFATSEA) (AN-Conf/14-WP/173) were noted.

4.20 As a result of the discussion, the Conference agreed on the following recommendation(s):

Recommendation 4.2/1 – Aviation cybersecurity

That States:

a) develop and implement a national plan to address cyber threats and risks to civil aviation in a holistic manner across all aviation domains, and in coordination with relevant non-aviation stakeholders using the core elements as a reference;

b) align aviation cybersecurity activities in the regional air navigation, safety, and security and facilitation plans through the coordination processes of the planning and implementation regional groups, regional aviation safety groups and regional aviation security and facilitation groups; and

c) report to ICAO their experience in implementing ICAO provisions and guidance material related to aviation cybersecurity, through the appropriate expert group(s) or through the processes of the planning and implementation regional groups, regional aviation safety groups and regional aviation security and facilitation groups;

that ICAO:

d) provide guidance on the core elements to support States and stakeholders in addressing aviation cybersecurity, and integrate all aviation cybersecurity activities holistically in a consistent and coordinated manner; and

e) deliver timely, relevant and actionable cybersecurity guidance material to meet the needs of Member States and other aviation stakeholders.

— END —

[7] Aruba, Belize, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[8] Aruba, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela (Bolivarian Republic of).