International Civil Aviation Organization

Twenty Seventh Meeting of the Communications/ Navigation and Surveillance Sub-group (CNS SG/27) of APANPIRG

Bangkok, Thailand, 28 August – 01 September 2023

Agenda Item 2: Review outcomes of 41st Session of ICAO Assembly, APANPIRG, APAC ANSP Committee, ATM Sub-group, MET Sub-group and other meetings relevant to CNS Sub-group

REVIEW OUTCOMES OF 41ST SESSION OF THE ASSEMBLY

(Presented by the Secretariat)

SUMMARY

This paper briefly summarized the outcomes of the 41st Session of the Assembly related to CNS/ATM implementation for review and action by the meeting.

1. INTRODUCTION

1.1 The 41st Session of the Assembly was held at the Montréal Headquarters of the International Civil Aviation Organization (ICAO) from 27 September–7 October 2022. 2,573 Ministers and high-ranking government officials from 184 States gathered in-person and virtually for the launch of the ICAO 41st Assembly at ICAO HQ, the first since the COVID-19 outbreak. The documentation of the meeting, including Resolutions, Assembly Working Papers, Assembly Report and Minutes, Plenary – Action Sheets, Statements, Reference Documents, Presentations, and other materials can be accessed via the following link:

https://www.icao.int/Meetings/a41/Pages/default.aspx

1.2 This paper presents discussions/updates during Assembly 41 which are deemed relevant to CNS implementation for information and reference.

2. DISCUSSION

41st Session of the Assembly and Relevant Agenda Items

2.1 Over 600 Working Papers (WPs) were submitted under 56 Agenda Items during the 41st Session of the Assembly, while the CNS related topics are mainly discussed by Technical Commission under Agenda Item 30 - *Aviation Safety and Air Navigation Policy*, Agenda Item 31 - *Aviation Safety and Air Navigation Standardization*, Agenda Item 32 - *Aviation Safety and Air*

Navigation Regional Implementation Coordination Mechanisms, and Agenda Item 33 - *Other issues to be considered by the Technical Commission*.

2.2 Agenda Item 23 - *Innovation in Aviation*, Agenda Item 26 - *ICAO Civil Aviation Training and Capacity Building*, were considered by Executive Committee, which may also be of interest to the CNS SG/27 meeting.

Main Points of Technical Commission Reports

2.3 The Technical Commission had held four meetings between 29 September 2022 and 4 October 2022 and had addressed 219 working papers, as well as five draft reports to the Plenary. Representatives from some 184 Member States and 56 Observer Delegations had attended one or more meetings of the Commission.

2.4 Under Agenda Item 29 (WP/651), the Technical Commission had reviewed the Annual Reports of the Council for 2019, 2020 and 2021, and the supplementary report covering the first six months of 2022, and had noted the work accomplished in the safety and air navigation fields during the past three years.

2.5 Under Agenda Item 30 (WP/652), the Commission had reviewed both the fourth edition of the *Global Aviation Safety Plan* (GASP, Doc 10004) and the seventh edition of the *Global Air Navigation Plan* (GANP, Doc 9750).

2.6 The Commission had also reviewed the outcomes of the High-level Conference on COVID-19 (HLCC 2021), Safety Stream and had agreed on the need to urge States to take action on recommendations addressed to them. The Commission had recognized that convening divisional-type meetings ahead of Assembly sessions was an efficient means to recommend additional technical work for ICAO in due time for budgetary preparation for the following triennium and to allow the Technical Commission to focus on the global plans and policy decisions thereby improving the efficiency of the Assembly. Lastly, the Commission reviewed the Conference's outcomes on radio frequency spectrum matters and agreed to submit to the Plenary for adoption Resolution 30/2: *Support of the ICAO policy and radio frequency spectrum matters*.

2.7 Rather than presenting each agenda item report in detail, in line with the intention of the Technical Commission to focus on global plans and policy decisions so as to improve the efficiency of the Assemblies, the following Resolutions that the Technical Commission had submitted to the Plenary for adoption were highlighted, namely: Resolution 31/1: *Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation and surveillance/air traffic management (CNS/ATM) systems*; Resolution 31/2: *New Entrants*; and Resolution 33/1: *Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation*.

2.8 In the absence of comments, the President of the Assembly declared the following Reports of the Technical Commission approved and Resolutions as indicated adopted:

WP/651 — General Section
— Agenda Item 29: *Annual Reports of the Council to the Assembly for 2019, 2020 and 2021*

WP/652 — Agenda Item 30: *Aviation Safety and Air Navigation Policy* (Resolutions 30/1 and 30/2)

WP/653 — Agenda Item 31: *Aviation Safety and Air Navigation Standardization* (Resolutions 31/1 and 31/2)

WP/654 — Agenda Item 32: *Aviation Safety and Air Navigation Regional Implementation Coordination Mechanisms*

WP/655 — Agenda Item 33: *Other issues to be considered by the Technical Commission* (Resolution 33/1)

Executive Committee Report

2.9 Under Agenda Item 23: Innovation in Aviation, the Committee considered papers in two groups: *Review of ICAO processes and development of ICAO Standards* and *Governance and Strategic Planning.*

2.10 At its Thirteenth Meeting, the Executive Committee considered Agenda Item 26: ICAO Civil Aviation Training and Capacity Building, which covered *Training and Capacity Building*, and *Training Competencies Development*.

2.11 The Assembly declared the following Reports of the Executive Committee approved and Resolutions as indicated adopted:

WP/633 — Agenda Item 23: *Innovation in Aviation*

WP/675 — Agenda Item 26: *ICAO Civil Aviation Training and Capacity Building*

Main Publications of the Assembly

2.12 The Plenary Meetings Minutes for Assembly 41st Session was published as Doc 10182, the Executive Committee Report of Assembly 41st Session was published as Doc 10183, Assembly Resolutions in Force (as of 7 October 2022) was published as Doc 10184.

2.13 A provisional edition of all 33 Resolutions adopted at the 41st Session of the Assembly was also summarized and published on the meeting page.

2.14 The Resolutions indicated in Paragraph 2.8 of this paper were formulated by the Assembly as follows:

WP/652 (Resolutions 30/1)
A41-6: **ICAO global planning for safety and air navigation**

WP/652 (Resolutions 30/2)
A41-7: **Support of the ICAO policy on radio frequency spectrum matters**)

WP/653 (Resolutions 31/1)
A41-8: **Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation, and surveillance/air traffic management (CNS/ATM) systems**

WP/653 (Resolutions 31/2)

A41-9: **New Entrants**

WP/655 (Resolution 33/1)
A41-10: **Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation**

2.15 The WP/652, WP/653 and WP/655 are provided in **Appendix A, B** and **C** to this paper respectively for easy reference. The newly added relevant texts are extracted as follows:

2.16 **A41-6**: The Assembly *Invites* ICAO to progress in the development of guidance material related to the national air navigation plan during the upcoming revisions of the GANP and collect and share best practices, lessons learned, and benchmark results related to the implementation of operational improvements.

2.17 **A41-7**: The Assembly *Urges* Member States to consider, as a priority, public and aviation safety when deciding how to enable new or additional services, and to consult with aviation safety regulators, subject matter experts and airspace users, to provide all necessary considerations and to establish regulatory measures to ensure that incumbent aviation systems and services are free from harmful interference.

2.18 **A41-8**:

APPENDIX C
Ensuring the resilience of ICAO CNS/ATM systems and services

Whereas the CNS/ATM systems are evolving and so are the associated CNS threats and vulnerabilities;

Whereas the occurrences of interferences against satellite-based CNS systems and global navigation satellite system (GNSS), in particular, have significantly increased;

Whereas CNS resiliency to interference needs to be addressed at a global level with a holistic approach, ensuring an efficient and coordinated evolution between the infrastructure architecture, improved technological capabilities, civil and military operational procedures, radio regulatory authorities and civil-military coordination;

Recognizing that resiliency to interference needs to be improved by maximizing the integration of all suitable ground infrastructure, space infrastructure and airborne components in a complementary and cooperative manner to be as robust as possible to cases of satellite-based service disruption or environments where false or deceptive signals are present;

Recognizing that both the aircraft on-board and ground infrastructure complementing the satellite-based CNS systems need to be adapted to include, where appropriate, interference detection, mitigation and reporting functions to support the resolution of operationally encountered performance anomalies;

Believing that, combined with the use of the appropriate legal framework, such capabilities and measures will allow for the relevant authorities to act upon harmful interferences caused by the illegal operation of transmitters and avoid the proliferation and the use of such illegal transmitters and the misuse of test and maintenance equipment;

Believing that, with appropriate coordination and application of best practices, military and State authorities can conduct GNSS-related testing and other interventions using radio equipment as necessary and without causing an undue impact on civil aviation;

Believing that civil-military coordination should facilitate the sharing of relevant information with airspace users, especially when flying in the vicinity of a conflict zone; and

Acknowledging that loss of crew's situational awareness from malicious origin is classified as a cyber-security threat and cannot be tolerated in civil aviation; and that intentionally sending misleading signals to replace the accurate signal is a far more serious threat to flight safety than the loss of this signal.

The Assembly:

1. Encourages States to transition towards optimized, secure CNS systems based on complementary integration of suitable and independent aircraft capabilities, satellite- and ground-based infrastructure which maximize resiliency and robustness to any type of interference;

2. Encourages standardization bodies and industry to develop appropriate interference detection, mitigation and reporting capabilities for the aircraft on-board, satellite- and ground-based CNS system components, in order to ensure higher CNS resiliency, continuity of operations and prevent any cascading effects from the use of compromised position, velocity or time data;

3. Encourages States to ensure that sufficient terrestrial CNS capabilities remain available to ensure safe operations and complement aircraft-level integration of position, velocity and time with independent surveillance information;

4. Invites ICAO to develop high-level principles on how to integrate CNS ground, space and on-board systems and capabilities to obtain more resilient positioning and timing services;

5. Urges States to apply necessary measures to avoid the commercialization/proliferation and the use of illegal transmitters such as jammers and the misuse of test and maintenance equipment which may impact CNS systems;

6. Urges States to ensure close collaboration between aviation authorities, military authorities, service providers, radio regulatory and spectrum enforcement authorities to put in place any special measures required to ensure that spectrum used by all CNS systems, and GNSS in particular, is free from harmful interference;

7. Urges States to refrain from any form of jamming, or spoofing affecting civil aviation;

8. Urges States to coordinate and notify to the maximum extent possible in advance with the air navigation services provider (ANSP) responsible for the affected airspace in case of military or other State-authorized security or defence-related operations or training, potentially causing any form of jamming, or spoofing affecting civil aviation; and

9. Urges States and operators, when assessing the interference risks associated with conflict zones, to consider that the use of satellite-based CNS systems can potentially be impacted beyond those zones.

Updates on GANP

2.19 The Doc 9750 - Global Air Navigation Plan (GANP) is the ICAO's highest air navigation strategic document and the plan to drive the evolution of the global air navigation system. The purpose of the GANP is to equitably accommodate all airspace users operations in a safe, secure and cost-effective manner while reducing the aviation environmental impact. To this end, the GANP provides a series of operational improvements to increase capacity, efficiency, predictability, and flexibility while ensuring interoperability of systems and harmonization of procedures.

2.20 The Sixth Edition of the GANP, Doc 9750, adopted at the 40th Assembly through *Resolution A40-1: ICAO Global Planning for Safety and Air Navigation* in 2019, which explains important details of the structure of several levels (global-regional-national) and the vision of the GANP on the "efficiency ambitions", the restructuring of the Aviation System Block Upgrade (ASBU) framework and the implementation of Basic Building Blocks (BBBs), emphasizing the level of compliance with the GANP.

2.21 The ICAO Assembly, at its 39th Session, agreed on the expansion of the GANP lifecycle through three-year minor and six-year major updates, as relevant, in order to provide for stability. While the sixth edition of the GANP, endorsed by the Assembly at its 40th Session, constituted a major update, a seventh edition, containing minor updates will be presented to the 41st Assembly for endorsement.

2.22 The WP/45 from ICAO Council which introduced the Seventh Edition of GANP has been presented to the 41st ICAO Assembly Sessions, which is provided in **Appendix D** to this paper. The Technical Commission reviewed A41-WP/45, which called for the endorsement of a minor update of the Global Air Navigation Plan (GANP, Doc 9750 – Seventh Edition), and proposed an outlook for the eighth edition. The seventh edition of the GANP, available via the GANP Portal (https://www4.icao.int/ganpportal), proposed an update to the safety key performance area of GANP performance framework, as well as a maintenance process to keep it current. It also proposed a mapping of the essential services outlined in the Basic Building Block (BBB) framework to the Protocol Questions (PQs) of the Universal Safety Oversight Audit Programme (USOAP) as well as minor updates to the BBB and the Aviation System Block Upgrade (ASBU) frameworks. The Commission supported the proposed outlook for the eighth edition of the GANP and proposed to consider making the GANP content available in a portable document format (PDF) for better readability.

2.23 The Fourth Edition of the Global Aviation Safety Plan (GASP, Doc 10004) and the Seventh Edition of the Global Air Navigation Plan (GANP, Doc 9750) were endorsed by A41 through **Resolution A41-6:** *ICAO global planning for safety and air navigation*. These important strategic plans guide States cooperation and actions on the basis of global aviation targets and technology roadmaps, enabling aligned worldwide progress on key priorities and challenges. The endorsement of the latest editions of ICAO's GASP and GANP will bring the aviation community together around common targets and pathways to achieve an agile, safe, secure, sustainable, high-performing and interoperable global air transport system. Cyber resilience of safety critical systems is a key priority in the next edition of the GANP.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) review the text in paragraphs 2.16, 2.17 and 2.18 and take follow up actions when appropriate; and

c) discuss any relevant matter as appropriate.

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A41-WP/652
P/48
4/10/22

ASSEMBLY — 41ST SESSION

REPORT OF THE TECHNICAL COMMISSION ON AGENDA ITEM 30

(Presented by the Chairperson of the Technical Commission)

The attached report on Agenda Item 30 has been approved by the Technical Commission. Resolutions 30/1 and 30/2 are recommended for adoption by the Plenary.

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

(12 pages)

Agenda Item 30: Aviation Safety and Air Navigation Policy

Global Aviation Safety Plan (GASP), and implementation of regional and national aviation safety plans

30.1 The Commission reviewed A41-WP/46, presented by the Council, which put forward the 2023-2025 (fourth) edition of the *Global Aviation Safety Plan* (GASP, Doc 10004) for endorsement by the Assembly. The revised GASP sets forth the global strategy for the continuous improvement of aviation safety. It provides a framework in which regional and national aviation safety plans (RASP and NASP) are developed and implemented. The Commission recommended that the Assembly endorse the 2023-2025 edition of the GASP.

30.2 The Commission reviewed the following papers regarding the 2023-2025 edition of the GASP: A41-WP/109 presented by Bangladesh; A41-WP/118, presented by Singapore and co-sponsored by Australia, Bangladesh, Canada, China, Malaysia, Papua New Guinea, Thailand, Flight Safety Foundation (FSF) and the International Air Transport Association (IATA), as well as by Fiji, New Zealand, Palau, Samoa, Solomon Islands, Member States[1] of the European Union (EU), the other Member States[2] of the European Civil Aviation Conference (ECAC), European Organisation for the Safety of Air Navigation (EUROCONTROL) and the International Coordinating Council of Aerospace Industries Associations (ICCAIA); A41WP/136 presented by Japan; A41-WP/252 presented by the African Civil Aviation Commission (AFCAC) on behalf of -54 Member States[3]; A41-WP/373 presented by Colombia and supported by Argentina, Bolivia (Plurinational State of), Brazil, Chile, Dominican Republic, El Salvador, Guyana, Mexico, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of); and A41-WP/94, presented by ICCAIA, the International Federation of Air Line Pilots Associations (IFALPA) and the International Federation of Air Traffic Controllers Associations (IFATCA). Concern was noted about the possible impact of the extension of the GASP target for effective State safety programme (SSP) implementation from 2025 to 2028, as SSP and safety management systems (SMS) are important for States and industry to cope with aviation risks resulting from disruptive events and crisis situations. The Commission agreed on the need for ICAO to continue supporting regions and States in the development and implementation of their RASPs and NASPs, in line with the latest edition of the GASP, by creating and updating tools, guidance and capacity-building efforts to assist all stakeholders in achieving the GASP goals. The Commission further agreed on the need for ICAO, through relevant expert groups, to include consideration of regional aircraft operations, the implementation of new technologies, digitalization, resilience and environment, as well as the need for regulatory cooperation and harmonized policies in support of operational safety improvements in forthcoming editions of the GASP or related documentation.

30.3 Information papers were provided by Oman (A41-WP/116) and the United States (A41-WP/582).

Latest developments related to the Global Air Navigation Plan (GANP)

30.4 The Commission reviewed A41-WP/45, presented by the Council, which called for the endorsement of an update of the *Global Air Navigation Plan* (GANP, Doc 9750 – Seventh Edition), and proposed an outlook for the eighth edition. The seventh edition of the GANP, available via the GANP Portal (https://www4.icao.int/ganpportal), proposed an update to the safety key performance area of GANP performance framework, as well as a maintenance process to keep it current. It also proposed a

mapping of the essential services outlined in the Basic Building Block (BBB) framework to the Protocol Questions (PQs) of the Universal Safety Oversight Audit Programme (USOAP) as well as minor updates to the BBB and the Aviation System Block Upgrade (ASBU) frameworks. The Commission recommended that the Assembly endorse the seventh edition of the GANP. The Commission supported the proposed outlook for the eighth edition of the GANP and proposed to consider making the GANP content available in a portable document format (PDF) for better readability.

30.5 The Commission reviewed A41-WP/131, co-presented by Brazil, China, Japan, Singapore, Thailand and the United States, and agreed that ICAO define new key performance indicators (KPIs) within the GANP performance framework applicable to the Trajectory-Based Operation (TBO) concept. The Commission encouraged the aviation community to consider the use of such indicators, when developed and agreed to, to quantify the TBO benefits.

30.6 The Commission reviewed A41-WP/244 presented by Uruguay, and co-sponsored by Guyana and the Member States[4] of the Latin American Civil Aviation Commission (LACAC), which called for collaboration between safety and air navigation. The Commission reviewed the practical approaches proposed to improve this collaboration at global and regional levels. The Commission noted the work done, as part of the update to the safety key performance area, to define common safety indicators for the GANP and the GASP. To further improve the alignment between the GANP and the GASP, the Commission agreed that ICAO consider, working through the appropriate expert groups, defining a common aspirational safety goal and cross-referencing the GASP high-risk categories, goals and targets in the safety KPA of the GANP performance framework. The Commission agreed to encourage the regional groups to work jointly on cross-cutting GANP and GASP issues, and to consider organizing interactive awareness-raising workshops between the three ICAO global plans, i.e. GANP, GASP and the Global Aviation Security Plan (GASeP).

30.7 The Commission reviewed A41-WP/134, presented by United Arab Emirates, which highlighted the importance of global, regional and national harmonization of performance-based air navigation planning. The Commission urged States as well as planning and implementation regional groups (PIRGs) to establish a performance-based management approach and define performance targets according to their needs.

30.8 The Commission reviewed A41-WP/148, presented by Saudi Arabia on behalf of the Arab Civil Aviation Organization (ACAO)[5] States, which highlighted the importance of national air navigation planning. The Commission agreed with the proposed amendment to the draft resolution proposed in A41-WP/45, as shown in the Appendix to A41-WP/148 and amended by the discussions, which invited ICAO to progress in the development of guidance material related to the national air navigation plan during the upcoming editions of the GANP and to collect and share best practices, lessons learned, and benchmark results related to the implementation of air navigation operational improvements.

30.9 The Commission reviewed the following papers related to the challenges and opportunities of advancing the global aviation system while maintaining the flexibility to integrate innovative concepts and new operations: A41-WP/237 and Corrigendum No. 1, presented by United States, and co-sponsored by Thailand; and A41-WP/87, presented by ICCAIA and the Civil Air Navigation Services Organisation (CANSO) and co-sponsored by Brazil. The Commission noted the ongoing update of the Global ATM Operational Concept and the review of the conceptual roadmap for the eighth edition of the GANP, and agreed that the characteristics for the next era of air traffic and

airspace management system, outlined in A41-WP/87, be brought to the attention of the relevant expert groups. In this regard, the Commission agreed that the proposed Assembly resolution contained in WP/87 was not needed. The Commission highlighted the need to support the work of the ICAO Standards Roundtable and the participation of unconventional (non-aviation) industries, through established mechanisms. With respect to the use of direct submissions, the Commission noted that the Executive Committee was considering such matters under Agenda Item 23.

30.10 The Commission reviewed A41-WP/133, presented by Japan, which emphasized the importance of the environment and in particular of collaboratively improving the air navigation system to address decarbonisation for the sustainable future development of civil aviation. The Commission encouraged Member States to exchange information on measures for sustainable development of aviation and further collaborate for decarbonisation through the improvement of the air navigation system.

30.11 Information papers provided by Brazil (A41-WP/286), Japan (A41-WP/251) and the United States (A41-WP/599) were noted.

30.12 In light of the discussion, the Commission agreed to submit, for adoption by the Plenary, the following resolution to supersede Assembly Resolution A40-1:

Resolution 30/1: ICAO global planning for safety and air navigation

Whereas ICAO strives to achieve the goal of a safe and orderly development of civil aviation through cooperation among Member States and other stakeholders;

Whereas to realize this goal, the Organization has established Strategic Objectives, including objectives for safety and for air navigation capacity and efficiency;

Recognizing the importance of global frameworks and regional and national plans to support the Strategic Objectives of ICAO;

Recognizing the importance of effective implementation of regional and national plans and initiatives based on the global frameworks;

Recognizing that further progress in improving the global safety, capacity and efficiency of civil aviation is best achieved through a cooperative, collaborative and coordinated approach in partnership with all stakeholders under the leadership of ICAO; and

Noting the approval by the Council of the ~~third~~ 2023-2025 edition of the Global Aviation Safety Plan (GASP) and of the ~~sixth~~ seventh edition of the Global Air Navigation Plan (GANP);

The Assembly:

1. *Endorses* the ~~third~~ 2023-2025 edition of the Global Aviation Safety Plan (GASP) and the ~~sixth~~ seventh edition of the Global Air Navigation Plan (GANP) as the global strategic directions for safety and the evolution of the air navigation system, respectively;

2. *Resolves* that ICAO shall implement and keep current the GASP and the GANP to support the relevant Strategic Objectives of the Organization, while ensuring necessary stability;

3. *Resolves* that these global plans shall be implemented and kept current in close cooperation, collaboration and coordination with all concerned stakeholders;

4. *Resolves* that these global plans shall provide the frameworks in which regional, subregional and national plans will be developed and implemented, thus ensuring consistency, harmonization and coordination of efforts aimed at improving international civil aviation safety, capacity and efficiency;

5. *Urges* Member States to develop sustainable solutions to fully exercise their safety oversight and air navigation responsibilities which can be achieved by sharing resources, utilizing internal and/or external resources, such as regional and subregional organizations and the expertise of other States;

6. *Urges* Member States to demonstrate the political will necessary for taking remedial actions to address safety and air navigation deficiencies, including those identified by Universal Safety Oversight Audit Programme (USOAP), through the GASP, the GANP and the ICAO regional planning process;

7. *Urges* Member States, the industry and financing institutions to provide the needed support for the coordinated implementation of the GASP and GANP, as well as regional and national plans, avoiding duplication of efforts;

8. *Calls* upon States and invites other stakeholders to cooperate in the development and implementation of regional, subregional and national plans based on the frameworks of the GASP and GANP;

9. Instructs the Secretary General to promote, make available and effectively communicate the GASP and the GANP; and

10. Declares that this resolution supersedes Resolution ~~A39-12~~ A40-1 on ICAO global planning for safety and air navigation.

APPENDIX A

Global Aviation Safety Plan (GASP)

Reaffirming that the primary objective of the Organization continues to be the improvement of safety and an associated reduction in the number of accidents and related fatalities within the international civil aviation system;

Recognizing that safety is a responsibility involving ICAO, Member States and all other stakeholders;

Recognizing the safety benefits that can be drawn from partnerships between States and industry;

~~*Recognizing* that the High-level Safety Conference (2010) reaffirmed the need for the ICAO safety framework to continuously evolve to ensure its sustained effectiveness and efficiency in the changing regulatory, economic and technical environment;~~

Noting that ~~the expected increase in international civil aviation traffic will result in an increasing number of aircraft accidents unless the accident rate is reduced~~ a safe, resilient and sustainable aviation system contributes to the economic development of States and their industries;

Recognizing the need to maintain the public's confidence in air transport by providing access to relevant safety information;

Recognizing that a proactive approach in which a strategy is established to set ~~priorities~~ goals, targets and indicators to manage organizational challenges and operational safety risks is of paramount importance to the achievement of further improvements in aviation safety;

Recognizing that regional aviation safety groups have been implemented by ICAO, taking into account the needs of the various regions and building on the already existing structures and forms of cooperation;

Noting the intent to apply ~~the safety management principles~~ a risk-based approach to managing safety in the GASP to enhance safety by focusing action where it is most needed;

Noting the development of the global aviation safety roadmap, as an action plan to assist the aviation community in ~~implementing the safety initiatives presented in~~ achieving the GASP goals, through a structured, common frame of reference for all relevant stakeholders; and

Noting the need to assist Member States in ~~implementing safety management principles and mitigate risks on identified operational issues~~ building upon safety oversight systems to adopt a safety management approach under their State safety programme (SSP);

The Assembly:

1. *Stresses* the need for continuous improvement of aviation safety through a reduction in the number of accidents and related fatalities in air transport operations, including regional aircraft operations, in all parts of the world~~, particularly in States where safety records are significantly worse than the worldwide average~~;

2. *Stresses* that limited resources of the international aviation community should be used strategically to support States or regions ~~whose safety oversight maturity is not at an acceptable level~~ seeking assistance to facilitate State safety programme (SSP) implementation, including strengthening safety oversight;

3. *Urges* Member States to implement national aviation safety plans consistent with the GASP to continually reduce fatalities and the risk of fatalities;

4. *Urges* Member States, regional safety oversight organizations (RSOOs), regional aviation safety groups (RASGs) and international organizations concerned to work with all stakeholders to implement regional aviation safety plans consistent with the GASP to continually reduce fatalities and the risk of fatalities;

5. *Urges* States to fully exercise safety oversight of their operators in full compliance with applicable Standards and Recommended Practices (SARPs), and assure themselves that every foreign

operators flying into their territory receives adequate oversight from its own State and take appropriate action when necessary to preserve safety; and

6. *Encourages* ICAO to continue the development of ~~the global aviation safety roadmap, as required~~ guidance material and tools to support the development and implementation of national and regional aviation safety plans.

APPENDIX B

Global Air Navigation Plan (GANP)

Whereas the enhancement of the safety, capacity and efficiency of aviation operations is a key element of the ICAO Strategic Objectives;

Having adopted Resolution ~~A40-4~~ A41-xx, a consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation;

Recognizing the importance of GANP as an operational strategy and part of the basket of measures to achieve ICAO's global aspirational goals on CO2 emissions; and

Recognizing that many States and regions are developing new air navigation plans for their own air navigation modernization and transformation;

Recognizing that sharing of best practices, lessons learned, and provision of guidance material can support States in the introduction of operational improvements in cost-effective manner through the adoption of advanced systems without going through intermediate steps;

The Assembly:

1. *Instructs* the Council to use the guidance in the Global Air Navigation Plan (GANP) to develop and prioritize the technical work programme of ICAO in the field of air navigation;

2. *Urges* the Council to provide States with a standardization and evolution roadmap, as announced in the GANP, as a basis for the work programme of ICAO;

3. *Calls upon* States, planning and implementation regional groups (PIRGs), and the aviation industry to utilize the guidance provided in the GANP for planning and implementation activities which establish priorities, targets and indicators consistent with globally-harmonized objectives, taking into account operational needs;

4. *Calls upon* States to take into consideration the GANP guidelines, for the implementation of operational improvements as part of their national strategy to reduce the environmental impact, including CO_2 emissions, from international aviation

5. *Calls upon* States, PIRGs, and the aviation industry to provide timely information to ICAO, and to each other, regarding the implementation status of the GANP, including the lessons learned from the implementation of ~~its provisions~~ of the operational improvements outlined in the ASBU framework;

6. *Invites* PIRGs to use ICAO standardized tools or adequate regional tools to monitor and, in collaboration with ICAO, analyse the implementation status of air navigation systems;

7. *Instructs* the Council to publish the results of the analysis on the regional performance dashboards ~~and in an annual global air navigation report~~ including, as a minimum, the key implementation priorities and accrued environmental benefits associated with the implementation of the operational improvements outlined in the ASBU framework;

8. *Urges* States that are developing new air navigation plans, for their own air navigation modernization, to coordinate with ICAO and align their plans so as to ensure regional harmonization, and global compatibility and ~~harmonization~~ interoperability; ~~and~~

9. *Instructs* the Council to continue developing the GANP, keeping it current with evolving ~~technology~~ and emerging technologies and operational requirements; and

10. *Invites* ICAO to progress in the development of guidance material related to the national air navigation plan during the upcoming revisions of the GANP and collect and share best practices, lessons learned, and benchmark results related to the implementation of operational improvements.

Relevant Outcomes of the High-level Conference on COVID-19, Safety Stream (HLCC 2021)

Outcomes of HLCC 2021 on operational measures related to the COVID-19 pandemic

30.13 The Commission reviewed A41-WP/41, presented by the Council, which reported on the work accomplished by the High-level Conference on COVID-19 (HLCC 2021) under the Safety Stream. The Commission recognized the importance of convening divisional-type meetings ahead of Assembly sessions as a means to recommend additional technical work for ICAO in due time for budgetary preparation for the following triennium as well as to allow the Technical Commission to focus on global plans and policy decisions, thereby improving the efficiency of Assemblies.

30.14 The Commission, in reviewing A41-WP/104 presented by Bangladesh; A41-WP/188 presented by Japan; A41-WP/230 presented by United Arab Emirates and supported by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia; A41-WP/377 presented by Indonesia; A41-WP/311 presented by AFCAC on behalf of its 54 Member States[3]; and A41-WP/534 presented by the Member States[6] of the Central American Corporation for Air Navigation Services (COCESNA), recalled relevant HLCC 2021 recommendations, and requested ICAO and its Member States to continue taking necessary measures to action these recommendations that could be further informed by the contents of these working papers. The Commission further expressed its strong support for a number of the working papers. In noting some concerns raised with A41-WP/230 and A41-WP/377, the Commission agreed that the content of the working papers should be referred to the appropriate expert groups for further consideration.

30.15 The Commission reviewed A41-WP/193, presented by Canada and co-sponsored by Costa Rica, Côte d'Ivoire, Dominican Republic, Kenya, Mexico, New Zealand, Oman, Senegal,

Member States[1] of the EU, the other Member States[2] of the ECAC, and EUROCONTROL, regarding the need to review Annex 13 to address conflict of interest scenarios in the context of the downing of an aircraft during safety investigations in order to enhance the credibility and transparency of aircraft accident investigations. It was noted that this matter was within the scope of the existing ICAO work programme. The Commission expressed its support to the working paper and agreed that its content should be forwarded to the appropriate expert group.

Outcomes of HLCC 2021 on safety management

30.16 The Commission reviewed A41-WP/246, Revision No. 1 presented by Chile, Costa Rica, Dominican Republic, Panama, Singapore and FSF and co-sponsored by ICCAIA; A41-WP/408 presented by Venezuela (Bolivarian Republic of) and supported by Argentina, Bolivia (Plurinational State of), Colombia, Dominican Republic, Ecuador, El Salvador, Guyana, Mexico, Panama, Paraguay, Peru, Suriname and Uruguay; A41-WP/380 presented by Venezuela (Bolivarian Republic of) and supported by Argentina, Costa Rica, Dominican Republic and Panama; A41-WP/303 presented by AFCAC on behalf of its 54 Member States[3]; A41-WP/218 presented by Brazil and supported by LACAC[4]; A41-WP/187 presented by Ecuador and supported by Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Dominican Republic, El Salvador, Guyana, Mexico, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of); A41-WP/314 presented by Ecuador and supported by Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, El Salvador, Guatemala, Guyana, Mexico, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of); A41-WP/128 presented by Singapore and co-sponsored by Bangladesh, Canada, China, Japan, Malaysia, New Zealand, Papua New Guinea, Republic of Korea, Thailand, United States, Member States[1] of the EU, the other Member States[2] of the ECAC, EUROCONTROL and the FSF; A41-WP/248 presented by India; A41-WP/236 presented by Canada and Japan and co-sponsored by New Zealand; A41-WP/395 presented by Chile and supported by 20 Member States[4] of LACAC, Guyana and Suriname; A41-WP/306 presented by Colombia and supported by Argentina, Bolivia (Plurinational State of), Chile, Dominican Republic, Ecuador, El Salvador, Guyana, Mexico, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of); and A41-WP/120 and A41-WP/216 presented by China. The Commission noted that the contents of these working papers could further inform the actions to address the HLCC 2021 Recommendations and agreed to refer them to the appropriate expert groups along with concerns raised during the discussions.

30.17 With respect to A41-WP/303, the Commission noted support for the application of safety management systems (SMS) to ground handling service providers, while reinforcing the need for a flexible and balanced approach as reflected by the recommendation from the HLCC. Concerns were expressed regarding A41-WP/306, specifically the need to strike a balance between harmonization and tailoring of safety performance indicators to operational risk. Regarding A41-WP/120 and A41-WP/128, the need to respect the principles for the protection of safety data, safety information and related sources outlined in ICAO Annex 19 was emphasized.

30.18 Information papers provided by Brazil (A41-WP/551), China (A41-WP/460), Iran (Islamic Republic of) (A41-WP/195), Saudi Arabia (A41-WP/522), the United Arab Emirates (A41-WP/537), the United States (A41-WP/378) and the Interstate Aviation Committee (IAC) (A41-WP/72) were noted.

HLCC outcomes on radio frequency spectrum matter

30.19 The Commission reviewed A41-WP/227 presented by Saudi Arabia on behalf of the ACAO States[5]; A41-WP/266 presented by Colombia and supported by Argentina, Bolivia (Plurinational State of), Brazil, Chile, Dominican Republic, Ecuador, Guyana, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of); A41-WP/406 presented by the Member States[6] of COCESNA and A41-WP/80, presented by the Airports Council International (ACI), CANSO, IATA, ICCAIA, IFALPA,IFATCA, and co-sponsored by the FSF, regarding potential interference from 5G deployment to the radio altimeter. The Commission recalled relevant HLCC 2021 Recommendations, and requested ICAO and its Member States to continue taking necessary measures and efforts to ensure that radio altimeters and other aeronautical systems are free from harmful interference, including implementation of mitigation measures, sharing of best practices, as well as development of relevant provisions and guidance. Furthermore, recognizing the criticality of radio frequency spectrum, the Commission encouraged States and regions to actively participate in spectrum defence activities and to endorse the ICAO position for the twenty-third meeting of the International Telecommunication Union World Radiocommunication Conferences (ITU WRC-23) (State letter E 3/5-21/37).

30.20 Information papers provided by Brazil (A41-WP/536), Oman (A41-WP/410) and United States (A41-WP/561) were noted.

30.21 In light of the discussion, the Commission agreed to submit, for adoption by the Plenary, the following resolution to supersede Assembly Resolution A38-6:

Resolution 30/2: *Support of the ICAO policy on radio frequency spectrum matters*

Whereas ICAO is the specialized agency of the United Nations responsible for the safety, regularity and efficiency of international civil aviation;

Whereas ICAO adopts international Standards and Recommended Practices (SARPs) for aeronautical communications systems and radio navigation aids;

Whereas the International Telecommunication Union (ITU) is the specialized agency of the United Nations regulating the use of the radio frequency spectrum;

Whereas the ICAO position, as approved by the Council, for ITU World Radiocommunication Conferences (WRCs) is the result of the coordination of international aviation requirements for radio frequency spectrum;

Whereas a comprehensive frequency spectrum strategy is required by aviation to support timely availability and appropriate protection of adequate spectrum;

Whereas a sustainable environment for growth and technology development is required to support safety and operational effectiveness for current and future operational systems and allow for the transition between present and future technologies;

Recognizing that the development and the implementation of the communications, navigation, and surveillance/air traffic management (CNS/ATM) systems and the safety of international civil aviation could be seriously jeopardized unless requirements for appropriate aviation safety spectrum allocations are satisfied and the continued protection of those allocations is achieved;

Recognizing that unresolved spectrum issues relating to aeronautical safety services have resulted in flight cancellations, degradations of air traffic management services and interruptions of flight operation;

Recognizing that to ensure optimal use of the frequency spectrum allocated to aviation, efficient frequency management and use of best practices are required;

Recognizing that support from ITU member administrations is required to ensure that the ICAO position is supported by the WRC and that aviation requirements are met;

Considering the urgent need to increase such support due to the growing demand for spectrum and aggressive competition from commercial telecommunications services;

Considering the increased level of ITU WRC preparation activities associated with the growing demand for bandwidth from all users of the radio frequency (RF) spectrum, as well as the increased importance of the development of regional positions by regional telecommunication bodies such as APT, ASMG, ATU, CEPT, CITEL and RCC4; and

Considering Recommendations 7/3 and 7/6 of the Special Communications/Operations Divisional Meeting (1995) (SP COM/OPS/95), Recommendation 5/2 of the 11th Air Navigation Conference (2003), and Recommendation 1/12 of the 12th Air Navigation Conference (2012), and Recommendation 5/5 of the High-level Conference on COVID-19 (2021);

The Assembly:

1. *Urges* Member States, international organizations and other civil aviation stakeholders to support firmly the ICAO frequency spectrum strategy and the ICAO position at WRCs and in regional and other international activities conducted in preparation for WRCs, including by the following means:

a) working together to deliver spectrum-efficient aeronautical systems as well as frequency management ~~and~~ that meet current "best practices" ~~to demonstrate the effectiveness and relevance of the aviation industry in spectrum management~~;
b) supporting ICAO activities relating to the aviation frequency spectrum strategy and policy through relevant expert group meetings and regional planning groups;
c) undertaking to provide for aviation interests to be fully integrated in the development of their positions presented to regional telecommunications fora involved in the preparation of joint proposals to the WRC;
d) including in their proposals to the WRC, to the extent possible, material consistent with the ICAO position;
e) supporting the ICAO position and the ICAO policy statements at ITU WRCs as approved by Council and incorporated in the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718);
f) undertaking to provide civil aviation experts to fully participate in the development of States' and regional positions and development of aviation interests at the ITU; and
g) ensuring, to the maximum extent possible, that their delegations to regional conferences, ITU study groups and WRCs include experts from their civil aviation authorities and other civil aviation stakeholders who are fully prepared to represent aviation interests;

2. *Urges* Member States to consider, as a priority, public and aviation safety when deciding how to enable new or additional services, and to consult with aviation safety regulators, subject matter experts and airspace users, to provide all necessary considerations and to establish regulatory measures to ensure that incumbent aviation systems and services are free from harmful interference.

~~2~~3. *Requests* the Secretary General to bring to the attention of ITU the importance of adequate radio frequency spectrum allocation and protection for the safety of aviation;

~~3~~4. *Instructs* the Council and the Secretary General, as a matter of high priority within the budget adopted by the Assembly, to ensure that the resources necessary to support the development and implementation of a comprehensive aviation frequency spectrum strategy as well as increased participation by ICAO in international and regional spectrum management activities are made available; and

~~4~~5. *Declares* that this resolution supersedes Resolution ~~A36-25~~A38-6.

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[1] 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.

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

[3] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Cote 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, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

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

[5] Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, and Yemen

[6] Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

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ASSEMBLY — 41ST SESSION

REPORT OF THE TECHNICAL COMMISSION ON AGENDA ITEM 31

(Presented by the Chairperson of the Technical Commission)

The attached report on Agenda Item 31 has been approved by the Technical Commission. Resolutions 31/1 and 31/2 are recommended for adoption by the Plenary.

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

(15 pages)

Agenda Item 31: Aviation Safety and Air Navigation Standardization

Standardization process

31.1 The Commission reviewed A41-WP/58, presented by the Council, which contained information on progress achieved by the Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) project. Noting that the ultimate objective of the ICNSS project was to propose a set of recommendations for endorsement by the next Assembly, the Commission expressed its satisfaction with the efforts underway and encouraged States, international organizations and other stakeholders to support the continued development and implementation of a medium to long-term roadmap for the evolution of ICNSS and a new streamlined framework for communications, navigation, surveillance (CNS) and frequency spectrum standardization.

Standards-making process and the Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) Project

31.2 The Commission reviewed A41-WP/84, presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA), Airports Council International (ACI), International Air Transport Association (IATA), International Federation of Air Line Pilots' Associations (IFALPA), International Federation of Air Traffic Controllers' Associations (IFATCA), the Civil Air Navigation Services Organization (CANSO), co-sponsored by Brazil and the Flight Safety Foundation (FSF). The Commission supported the paper, which highlighted the importance of a mechanism and engagement from industry to ensure the foreseen ICNSS roadmaps and concepts to be addressed across all ICAO activities.

31.3 The Commission reviewed A41-WP/107, presented by New Zealand, which highlighted the effectiveness of developing and applying performance-based regulations in response to rapidly evolving technological innovations in the aviation sector. The Commission expressed support for the paper and recalled the ongoing work at ICAO related to the development and implementation of performance-based Standards and Recommended Practices (SARPs). Recognizing that the implementation of performance based regulatory frameworks required a number of critical elements to be considered, the Commission encouraged ICAO to continue its work on performance-based SARPs as well as on guidance material to promote their implementation in support of innovative and emerging technologies.

31.4 The Commission reviewed A41-WP/108, presented by Bangladesh, which noted challenges faced by States in incorporating complex SARPs and Procedures for Air Navigation Services (PANS) into their national regulations. The Commission agreed with the conclusions of this paper, encouraging States and industry stakeholders to enhance coordination and cooperation in support of the continued development and implementation of their ongoing Integrated CNS/ATM projects, and encouraging ICAO to continue to develop and finalize a new streamlined framework for CNS and frequency spectrum standardization.

31.5 The Commission reviewed A41-WP/233, presented by Brazil, supported by the Latin American Civil Aviation Commission (LACAC) Member States[1] and co-sponsored by ICCAIA, which outlined general principles of regulatory governance to improve regulatory practices under ICAO when developing SARPs and other guidance material. The Commission supported the content of this

paper, which highlighted that the Standards-making process must continue to evolve and improve in order to be aligned with the global best practices, considering a structured, sustainable, and systematic process of improving its regulatory governance.

31.6 The Commission noted that A41-WP/58, A41-WP/84, A41-WP/107, A41-WP/108 and A41-WP/233 shared the common subject of optimizing and enhancing the current Standard making process, a subject also addressed under Agenda Item 23. Noting the importance of consultation with Member States, the Commission agreed that the efforts to streamline the Standards making process as well as to implement performance based Standards should continue.

31.7 The Commission agreed to forward the contents of A41-WP/84, A41-WP/107, A41-WP/108 and A41-WP/233 to the appropriate expert groups with activities on these subjects. Furthermore, the Commission agreed that ICAO should continue its efforts to develop and finalize a new streamlined framework for CNS and frequency spectrum standardization, considering the perspectives expressed during the discussion, including the importance of transparency and consultation with Member States.

SARPs, PANS and guidance material

31.8 The Commission reviewed A41-WP/239, presented by South Africa, regarding the implementation of Article 33 of the *Convention on International Civil Aviation* (Chicago Convention, Doc 7300), where it was noted that the matter was within the scope of the existing ICAO work programme. In further noting the comments raised with respect to the discussion on A41-WP/239, the Commission agreed that the content of the working paper should be referred to the appropriate expert groups for further consideration.

31.9 The Commission reviewed A41-WP/364, presented by Argentina and supported by 19 Member States[2] of LACAC, which proposed to incorporate provisions related to air traffic services contingency plan into the *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM) (Doc 10066), Appendix 2. The Commission agreed to refer A41-WP/364 to the relevant expert group for consideration.

31.10 The Commission reviewed A41-WP/235, presented by China, regarding the need to develop in-flight turbulence standards for different aircraft types. The Commission recalled that the Standard in-flight turbulence intensity level had been recently updated and included in Annex 3 — *Meteorological Service for International Air Navigation*, and agreed that A41-WP/235 be referred to the relevant expert group for further consideration.

31.11 The Commission reviewed A41-WP/418, presented by Venezuela (Bolivarian Republic of), which highlighted the activities undertaken by the State for implementing the ICAO Meteorological Information Exchange Model (IWXXM) and the offer to support other States in converting aerodrome routine meteorological report (METAR) and aerodrome forecast (TAF) messages from the Traditional Alpha-numeric Code (TAC) format to XML-based format (IWXXM). The Commission agreed that A41-WP/418 be referred to the relevant expert group for further consideration.

31.12 The Commission reviewed A41-WP/319, presented by the Russian Federation, seeking SARPs to ensure the quality of fuel used in various types of aircraft. The Commission noted that

discussion on the subject was complex, which would involve multiple stakeholders with diverse operational requirements. The Commission therefore agreed to refer the contents of A41-WP/319 to relevant expert groups to identify the need and scope of the work required prior to its inclusion in the ICAO work programme.

31.13 The Commission reviewed A41-WP/190, presented by the Republic of Korea, seeking amendments related to advanced surface movement guidance and control systems (ASMGCS) level 5 implementation in Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations* and in the *Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual* (Doc 9830). The Commission noted the ongoing work of ICAO in this area and agreed to refer the proposals to relevant expert groups for further study.

31.14 The Commission reviewed A41-WP/159, presented by the United Arab Emirates, which highlighted the need to develop guidance on managing passenger evacuation at airports. The Commission noted the ongoing work of ICAO in this area and agreed to refer the contents of A41-WP/159 to the relevant expert group for further study.

31.15 The Commission reviewed A41-WP/170, presented by Bangladesh, which highlighted the challenges faced by various States in the provision of safety surveillance in the different areas of air navigation services (ANS). The paper called for ICAO to consider providing guidance on ANS regulatory oversight and certification of ANS providers. Noting the ongoing applicability of Recommendation 3.5/3 – Certification of ANSPs arising from the Thirteenth Air Navigation Conference (AN-Conf/13), the Commission agreed to refer the contents of A41-WP/170 to the appropriate expert group.

31.16 The Commission reviewed A41-WP/127, presented by ICCAIA, which provided a summary of the development of wake energy retrieval operations. The Commission noted the potential for fuel savings and consequent emissions reduction where wake energy retrieval operations were applied, and agreed that the proposal to develop provisions necessary to enable such operations be referred to the Council for further consideration, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra budgetary resources.

31.17 The Commission reviewed A41-WP/197, presented by the United Arab Emirates, which considered the interpretation of the Standards of Annex 6 — *Operation of Aircraft*, relating to terrain clearance requirements. The Commission agreed that a review of said provisions would be beneficial and that this should be referred to the Council for further consideration, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra-budgetary resources.

31.18 The Commission reviewed A41-WP/184, presented by Brazil, requesting guidance material to clarify the boundaries between Mandatory Continuing Airworthiness Information (MCAI) and other manufacturer publications. The Commission recognized the benefit of a common understanding of what information composes MCAI under Annex 8 — *Airworthiness of Aircraft* and agreed to refer recommendations to the appropriate expert group for consideration.

31.19 The Commission reviewed A41-WP/91, presented by ICCAIA and supported by IFALPA, on the multilateral recognition of certification for aerial firefighting aircraft but did not reach consensus on the need to develop provisions for aircraft certification based on the proposed use of the aircraft. Therefore, the Commission agreed that this issue should be forwarded to the Council for further

consideration, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra budgetary resources.

31.20 The Commission reviewed A41-WP/96, presented by the ICCAIA and supported by IFALPA, highlighting the risks associated with the candidate agents to replace halon in aircraft fire suppression systems being subject to the proposed ECHA (European Chemical Agency) per- and polyfluoroalkyl substances (PFAS) regulation. The Commission noted the need to ensure availability of options halon replacement technology for aircraft fire extinguishing agents through consideration of exemptions from regulation for halon replacement technologies. The Commission further noted the need for States and industry to provide their inputs to various decision-making bodies to ensure their needs were considered.

31.21 The Commission reviewed A41-WP/161, presented by China, related to global aircraft dismantling activities and the harmonization of policies for managing them. The Commission highlighted that the removal, disposition and reuse of parts and materials from non-airworthy aircraft might not be consistent with the intent of Annex 8. It was noted that a clear distinction should be made between an aircraft parted out for the scope of reusing components while re-introducing them into the aircraft supply chain, and the recycling of the raw material from decommissioned aircraft due to the safety and environmental impact. The Commission agreed to refer recommendations to the appropriate expert group for consideration.

31.22 The Commission reviewed A41-WP/147, presented by China and co-sponsored by Singapore, which proposed that ICAO develop appropriate airworthiness requirements for electric powered aircraft. The Commission noted the ongoing work of ICAO in this area and recognized that the relevant expert groups were currently addressing these tasks. The Commission agreed that ICAO should continue its work in this area.

Communications, navigation, and surveillance (CNS) resilience and global navigation satellite system (GNSS) interference mitigation

31.23 The Commission reviewed A41-WP/97, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of the European Civil Aviation Conference (ECAC), the Member States[5] of the African Civil Aviation Commission (AFCAC), the European Organisation for the Safety of Air Navigation (EUROCONTROL), and co-sponsored by Brazil, New Zealand, Singapore and the United States, which provided information on a growing number of occurrences of GNSS radio frequency interference (RFI), notwithstanding the actions agreed by the 40th Session of the Assembly and reiterated in State letter AN 7/5-20/89. Accordingly, the paper called for further action to mitigate GNSS and strengthen CNS system resilience.

31.24 The Commission reviewed A41-WP/196, presented by the United Arab Emirates, which reiterated a strong concern regarding ongoing harmful interference to GNSS and invited the Assembly to urge States to adopt and implement measures as suggested in the *Global Navigation Satellite System (GNSS) Manual* (Doc 9849) to manage and reduce the impacts of such anomalies.

31.25 The Commission reviewed A41-WP/198, presented by Japan, which reported on Japan's activities aiming to mitigate GNSS vulnerabilities. The paper also stressed the importance of monitoring and reporting GNSS RFI and the need to support ICAO activities on the development of an alternative

position navigation and timing (APNT) strategy to maintain air navigation services to the maximum extent possible, in the event of a GNSS signal outage.

31.26 The Commission noted the common aim to strengthen CNS systems resilience and mitigate harmful interference to GNSS as presented in A41-WP/97, A41-WP/196 and A41-WP/198. To this end, the Commission supported the proposed new Appendix to Assembly Resolution 35-15: Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation and surveillance/air traffic management (CNS/ATM) systems as presented in A41-WP/97 and agreed to submit for adoption by the Plenary the following resolution to supersede Assembly Resolution A35-15:

Resolution 31/1: Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation, and surveillance/air traffic management (CNS/ATM) systems

Whereas it is considered desirable to consolidate Assembly resolutions on the Organization's policies and practices related to CNS/ATM in order to facilitate their implementation and practical application by making their text more readily available and logically organized;

The Assembly:

1. *Resolves* that the Appendices attached to this resolution constitute the consolidated statement of continuing ICAO policies and practices related to CNS/ATM, as these policies exist at the close of the ~~35th~~41st Session of the Assembly;

2. *Resolves* to continue to adopt, at each ordinary session of the Assembly for which a Technical Commission is established, a consolidated statement of continuing ICAO policies and practices related to CNS/ATM; and

3. *Declares* that this resolution supersedes ~~A33-15~~A35-15.

APPENDIX A
General policy

[...]

APPENDIX B
Harmonization of the implementation of the ICAO CNS/ATM systems

[...]

APPENDIX C
Ensuring the resilience of ICAO CNS/ATM systems and services

Whereas the CNS/ATM systems are evolving and so are the associated CNS threats and vulnerabilities;

Whereas the occurrences of interferences against satellite-based CNS systems and global navigation satellite system (GNSS), in particular, have significantly increased;

Whereas CNS resiliency to interference needs to be addressed at a global level with a holistic approach, ensuring an efficient and coordinated evolution between the infrastructure architecture, improved technological capabilities, civil and military operational procedures, radio regulatory authorities and civil-military coordination;

Recognizing that resiliency to interference needs to be improved by maximizing the integration of all suitable ground infrastructure, space infrastructure and airborne components in a complementary and cooperative manner to be as robust as possible to cases of satellite-based service disruption or environments where false or deceptive signals are present;

Recognizing that both the aircraft on-board and ground infrastructure complementing the satellite-based CNS systems need to be adapted to include, where appropriate, interference detection, mitigation and reporting functions to support the resolution of operationally encountered performance anomalies;

Believing that, combined with the use of the appropriate legal framework, such capabilities and measures will allow for the relevant authorities to act upon harmful interferences caused by the illegal operation of transmitters and avoid the proliferation and the use of such illegal transmitters and the misuse of test and maintenance equipment;

Believing that, with appropriate coordination and application of best practices, military and State authorities can conduct GNSS-related testing and other interventions using radio equipment as necessary and without causing an undue impact on civil aviation;

Believing that civil-military coordination should facilitate the sharing of relevant information with airspace users, especially when flying in the vicinity of a conflict zone; and

Acknowledging that loss of crew's situational awareness from malicious origin is classified as a cyber-security threat and cannot be tolerated in civil aviation; and that intentionally sending misleading signals to replace the accurate signal is a far more serious threat to flight safety than the loss of this signal.

The Assembly:

1. *Encourages* States to transition towards optimized, secure CNS systems based on complementary integration of suitable and independent aircraft capabilities, satellite- and ground-based infrastructure which maximize resiliency and robustness to any type of interference;

2. *Encourages* standardization bodies and industry to develop appropriate interference detection, mitigation and reporting capabilities for the aircraft on-board, satellite- and ground-based CNS system components, in order to ensure higher CNS resiliency, continuity of operations and prevent any cascading effects from the use of compromised position, velocity or time data;

3. *Encourages* States to ensure that sufficient terrestrial CNS capabilities remain available to ensure safe operations and complement aircraft-level integration of position, velocity and time with independent surveillance information;

4. *Invites* ICAO to develop high-level principles on how to integrate CNS ground, space and on-board systems and capabilities to obtain more resilient positioning and timing services;

5. Urges States to apply necessary measures to avoid the commercialization/proliferation and the use of illegal transmitters such as jammers and the misuse of test and maintenance equipment which may impact CNS systems;

6. Urges States to ensure close collaboration between aviation authorities, military authorities, service providers, radio regulatory and spectrum enforcement authorities to put in place any special measures required to ensure that spectrum used by all CNS systems, and GNSS in particular, is free from harmful interference;

7. Urges States to refrain from any form of jamming, or spoofing affecting civil aviation;

8. Urges States to coordinate and notify to the maximum extent possible in advance with the air navigation services provider (ANSP) responsible for the affected airspace in case of military or other State-authorized security or defence-related operations or training, potentially causing any form of jamming, or spoofing affecting civil aviation; and

9. Urges States and operators, when assessing the interference risks associated with conflict zones, to consider that the use of satellite-based CNS systems can potentially be impacted beyond those zones.

31.27 The Commission reviewed A41-WP/162, presented by Saudi Arabia, co-sponsored by Bahrain, Kuwait, Oman, Qatar and United Arab Emirates, which emphasized the importance of ICAO's leading role in developing new provisions to reduce safety and security hazards, risks and threats related to the public availability and sharing, on the internet, of the automatic dependent surveillance — broadcast (ADS-B) information related to flights. Noting that careful consideration of positive and negative aspects of public availability of ADS-B positioning, including safety, security, performance and cost effectiveness, will be required, the Commission agreed to refer the proposal to the relevant expert groups for further consideration and evaluation.

31.28 The Commission reviewed A41-WP/353 and A41-WP/400, presented by Argentina with the support of 20 LACAC Member States[6]. Both papers recognized the need to improve the descriptions of surveillance radar testing, ADS-B and multilateration, as contained in the Appendices to the *Manual on Testing of Radio Navigation Aids*, Volume III — *Testing of Surveillance Radar Systems* (Doc 8071) and *Aeronautical Surveillance Manual* (Doc 9924). The Commission agreed to refer the proposals to the relevant expert groups.

31.29 The Commission reviewed A41-WP/214, presented by the United Arab Emirates and A41-WP/229, presented by Brazil and supported by LACAC Member States[1], where both highlighted the need for a harmonized international approach on the regulation of light sports aircraft. Working paper A41-WP/229 also pointed to the need to evaluate alternative strategies for product regulation (such as the use of industry consensus standards and declaration models). A consistent approach to the issuance of a Certificate of Airworthiness (or applicable airworthiness standards) and pilot licencing would reduce the limitations currently impacting the development of this sector and simplify the operation of this category of aircraft on international flights. The Commission noted the existence of certification Standards in Annex 8 — *Airworthiness of Aircraft*, and guidance in the *Airworthiness Manual* (Doc 9760), which could be further reviewed to ensure they accommodate the light sport aircraft category authorization and recognition. It further noted that work was already underway with regard to pilot licencing. The

Commission, therefore, agreed to refer the contents of A41-WP/214 and A41-WP/229 to the relevant expert groups.

31.30 The Commission reviewed A41- WP/458, presented by Argentina and supported by 18 Member States[7] of LACAC, which sought amendments related to a runway starter extension in Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations*. The Commission noted that the task had been approved by the Air Navigation Commission and work on the matter was in progress. The Commission reviewed A41-WP/285, presented by Uruguay, co-sponsored by Argentina, Brazil, Bolivia, Chile, Colombia, Dominican Republic, Ecuador, El Salvador Guatemala, Guyana, Panama, Paraguay, Peru and Venezuela (Bolivarian Republic of), which described difficulties and obstacles in implementing the processes described in the roadmap for the transition from aeronautical information service (AIS) to aeronautical information management (AIM) and the delay in integrating aeronautical information into a broader approach to aeronautical information management. The Commission underscored the importance of the matter and reiterated its continued support for the transition to digital information management to enable global ATM operations.

31.31 The Commission reviewed A41-WP/123, presented by Iran (Islamic Republic of), which called for the development of a standard phrase for air traffic controllers to use in warning pilots when doubt existed about the aircraft approach or where the possibility of an "unstabilized approach" existed. In noting the concerns expressed that called into question the suitability of advancing this development, the Commission agreed to refer the contents of A41-WP/123 to the appropriate expert groups for evaluation.

31.32 The Commission reviewed A41-WP/250, presented by Indonesia, concerning the challenges encountered by States who use English as a second language in understanding five-letters name codes (5LNC) radiotelephony phonetics. The Commission encouraged States to be aware of linguistic differences in various parts of the world for the sake of improving aviation safety. The Commission agreed to refer the contents of A41-WP/250 to the appropriate expert groups.

31.33 Information papers provided by: Brazil (A41-WP/276, A41-WP/294); Canada (A41-WP/567); China (A41-WP/482, A41-WP/492); New Zealand (A41-WP/576); the United States (A41-WP/507, A41-WP/550, A41-WP/556, A41-WP/573); AFCAC[5] (A41-WP/298, A41-WP/304); the European Organisation for Civil Aviation Equipment (EUROCAE) on behalf of Aeronautical Radio, Incorporated (ARINC) Industry Activities, RTCA and the Society of Automotive Engineers (SAE) International (A41-WP/560); the Interstate Aviation Committee (IAC) (A41-WP/89) and ICCAIA, co-sponsored by Brazil, (A41-WP/320) were noted.

New entrants and advanced air mobility

31.34 The Commission reviewed A41-WP/245, presented by the United States and co-sponsored by Japan, Republic of Korea, Singapore, Thailand and the Flight Safety Foundation (FSF), and A41-WP/160, presented by Japan and co-sponsored by the United States, on the need to establish an appropriate expert group to develop a common vision and concept of operation for advanced air mobility (AAM) and to consider the development of provisions and/or guidance material related to electric vertical take-off and landing (eVTOL) aircraft. The Commission recognized the rapidly evolving AAM ecosystem – a collection of new and emerging technologies being applied to the aviation ecosystem. While the Commission recognized the importance of domestic and regional regulatory developments

related to AAM and eVTOLs – and their potential added value for the development of future global provisions and guidance – it was recognized that international operations may require a globally harmonized framework. Furthermore, the Commission recognized that the leadership role of ICAO was essential to achieve such global harmonization, and therefore the Commission expressed support for the establishment of an expert group to develop a holistic vision, framework, as well as to advise ICAO on activities in this area. The Commission called upon States to support AAM activities through in-kind resources, and expressed broad support for the content of A41-WP/245 and A41-WP/160. The Commission suggested that the expert group conduct a gap analysis on existing practices and provisions and on what might be required, and that States be updated on the outcome of said analysis at the next high-level meeting.

31.35 The Commission reviewed A41-WP/83, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of ECAC, the Member States[5] of the African Civil Aviation Commission (AFCAC), EUROCONTROL and co-sponsored by Brazil, China, Singapore and the Flight Safety Foundation (FSF), related to flight rules. The Commission recognized that existing flight rules contained in Annex 2 — *Rules of the Air* were limiting States' possibilities to adequately regulate certain unmanned aircraft systems (UAS) operations. The Commission recommended that ICAO consider flight rules when analyzing the applicability of SARPs to UAS and assess the need for additional guidance material in the interim. The evolution of flight rules would allow for a full integration of new entrants, including AAM, while also striving for global harmonization. The Commission encouraged all stakeholders to continue sharing their best practices related to UAS and unmanned aircraft systems traffic management (UTM) regulations.

31.36 The Commission reviewed A41-WP/177, presented by the United Arab Emirates, which discussed the challenges faced in facilitating new entrants in the current ICAO airspace classification system. The Commission noted that this paper was linked to A41-WP/83 with regard to the applicability of current flight rules, and agreed that both papers should be referred to the appropriate expert group.

31.37 The Commission reviewed A41-WP/226, presented by India, which discussed the lack of a common altitude reference between conventional and unmanned aircraft flying at low altitudes, and agreed to refer the issue to the appropriate expert group.

31.38 The Commission reviewed A41-WP/224, presented by Canada, Japan and co-sponsored by New Zealand and the Flight Safety Foundation (FSF), and A41-WP/253, presented by Singapore and the Flight Safety Foundation (FSF), respectively discussing the increasing levels of automation, their impact on the role of the pilots and how to assess the technical and regulatory readiness for increased automation with the goal of future autonomy. The Commission recognized that increased levels of automation and certain autonomous capabilities might significantly impact the role and responsibilities of the pilot, as well as other aviation personnel sharing the responsibilities of flight safety. In noting that an expert group was currently working on the reliance on automation by pilots and the potential impact on pilot skills and proficiency, and welcoming that this activity be continued, the Commission supported that the wider scope of automation and autonomy, and the changing nature of the responsibilities during flight operations, be considered by an appropriate expert group. The Commission, in noting the work of FSF on autonomy, recognized that appropriate processes were needed to develop, regulate and implement increased automation and autonomy in the aviation ecosystem and requested that ICAO work with States, and international organizations, including FSF, when addressing increased automation and autonomy.

31.39 The Commission reviewed A41-WP/85, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of ECAC, EUROCONTROL and co-sponsored by Singapore, on higher airspace operations (HAO). The Commission noted a number of issues related to HAO and the need for measures to be undertaken to ensure a standardized, globally harmonized approach to address them. In lieu of a new resolution, the Commission noted that higher airspace operations were addressed in Assembly Resolution A40-7: *New entrants* and therefore recommended amendments thereto.

31.40 The Commission reviewed A41-WP/121, presented by China, which highlighted the need for provisions to be developed to support and enable UAS operations in the urban environment and the economic regulations for UAS logistics.

31.41 The Commission reviewed A41-WP/180, presented by Saudi Arabia, calling for ICAO to develop a strategy related to low-level operations of new entrants, and A41-WP/179, presented by Japan, calling for provisions to be developed for high-risk beyond visual line-of-sight (BVLOS) flights.

31.42 The Commission reviewed A41-WP/405 and A41-WP/424, presented by Venezuela (Bolivarian Republic of), supported by the Dominican Republic and Panama, and A41-WP/403, presented by Venezuela (Bolivarian Republic of), supported by Costa Rica, the Dominican Republic and Panama, which respectively highlighted the need for remote identification, tracking and authorizations for UAS, the incorporation of remotely piloted aircraft system (RPAS) in the flight plan (FPL) form, and the need for ICAO to develop guidance material related to UTM.

31.43 The Commission reviewed A41-WP/254, presented by Singapore, United Kingdom, Flight Safety Foundation (FSF) and the World Food Programme (WFP) and co-sponsored by New Zealand, and A41-WP/277, presented by the WFP, discussing challenges related using UAS to provide humanitarian assistance.

31.44 The Commission reviewed A41-WP/249, presented by Canada and co-sponsored by New Zealand, discussing the medical requirements for RPAS operations. The Commission noted that remote pilot licence provisions with regard to medical certificates were already contained in Amendment 175 to Annex 1 — *Personnel Licensing*, which became effective on 16 July 2018 and will become applicable on 3 November 2022.

31.45 The Commission recognized the impact of new entrants for low-altitude airspace, including in urban areas, and the increase in the pace of their development and implementation, thereby underscoring the need to accommodate new airspace users in the lower airspace. Noting the work of ICAO related to the UTM Framework and the UAS model regulations, the Commission agreed that: a regulatory strategy for the integration of new entrants in the lower airspace; further ICAO guidance material (including on UTM); as well as provisions, as appropriate, related to UAS other than RPAS, would facilitate new entrants' operations, bring safety enhancement, support harmonization, and have a significant positive impact on humanitarian assistance. The Commission supported that ICAO, working collaboratively with international organizations, further develop tools and guidance in support of BVLOS operations, as well as fit-for-purpose airworthiness and operational provisions to facilitate the certification and operation of certain UAS categories, and that the proposals warranted further study by appropriate expert groups. The Commission encouraged expert groups, when addressing those items, to leverage external material to avoid duplication of efforts. The Commission noted the on-going survey by FSF and

reaffirmed the importance of harmonized UAS national regulatory frameworks to be established to allow humanitarian stakeholders, such as WFP, to leverage the benefits of UAS during humanitarian assistance operations. The Commission called on States to use the ICAO UAS model regulations and UTM framework and to share their experience regulating UAS operations and UTM implementation, including at regional level. The Commission noted that the incorporation of RPA in the flight plan was already ongoing as part of the work programme of relevant expert groups of ICAO.

31.46 The Commission reviewed A41-WP/287, presented by AFCAC on behalf of 54 Member States[5], discussing the importance of UAS for Africa and how to support its development. In recognizing the benefits brought by UAS to Africa, the Commission supported that further harmonization be undertaken at regional level, ICAO UAS training and implementation activities be continued and potentially be expanded after a gap analysis, and that ICAO, together with industry partners, continue to serve as a forum to exchange information and best practices in the UAS domain. The Commission encouraged States to promote the use of UAS as a means to leverage new mobility and efficiency opportunities, and expressed overall support for the contents of A41-WP/287.

31.47 The Commission expressed broad support for the contents of A41-WP/121, A41-WP/179, A41-WP/180, A41-WP/254, A41-WP/277, A41-WP/287, A41-WP/403, A41-WP/405, A41-WP/424 and the intent of the proposals of A41-WP/249 to develop a lower tier, fit-for-purpose, set of medical provisions for remote pilots, while noting the reservations expressed by several States for ICAO to develop provisions and guidance for non-international operations. The Commission agreed that the proposals warranted further study by appropriate expert groups, subject to existing priorities funded through the 2023-2025 Budget, the availability of extra budgetary resources, and the capacity of the Organization to address the overall demand for activities to be conducted in this domain.

31.48 Information papers were provided by: Brazil (A41-WP/289 and A41-WP/292); China (A41-WP/443, A41-WP/444 and A41-WP/451); India (A41-WP/532); Italy (A41-WP/459); Republic of Korea (A41-WP/531 and A41-WP/547); Saudi Arabia (A41-WP/513); Singapore and the United States, supported by Australia, China, India, Indonesia, Japan, New Zealand, the Republic of Korea (A41-WP/452) and; the United States (A41-WP/552, A41-WP/554 and A41-WP/555).

31.49 In light of the above, the Commission agreed to submit, for adoption by the Plenary, the following resolution to supersede Assembly Resolution A40-7:

Resolution 31/2: New Entrants

Whereas the Preamble of the Convention on International Civil Aviation stipulates that signatories thereto had “agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically”;

Whereas Annex 11 to the Convention requires a Member State to determine those portions of airspace over its territory within which air traffic services will be provided and, thereafter, to arrange for such services to be established and provided;

Recognizing that, for the purposes of this Resolution, the term “New Entrants” refers to higher airspace operations (HAO) and unmanned aircraft system (UAS) traffic management (UTM) operations;

Recognizing that there is an increasing need to facilitate, within a global, harmonized framework, operations by New Entrants and that there is a large disparity in performance in the types of vehicle expected to comprise this new airspace user group;

Recalling resolution A40-26 on Commercial Space Transport (CST);

Recognizing that ICAO provisions may need to be amended or expanded in order to ~~support~~ ensure the safety, regularity and efficiency of operations by "New Entrants" and the integration of such operations into the existing air traffic management framework;

Recognizing that significant progress has been made concerning the facilitation of operations by New Entrants through regional and State initiatives; and

Recalling that the ICAO Global ATM Operational Concept states that all airspace should be a usable resource, any restriction on the use of any particular volume of airspace should be considered transitory, and all airspace should be managed flexibly;

The Assembly:

1. *Directs* ICAO to review Standards and Recommended Practices (SARPs) relating to, inter alia, the rules of the air, air traffic services, certification, licencing, liability and the environment, for amendment or expansion as necessary, and to develop specific concepts and guidance to facilitate the operation of New Entrants within a global, harmonized framework, taking into account regional frameworks and practices;

2. *Calls* on Member States to arrange their regulations and procedures governing the operation of New Entrants as well as the common use by all airspace users of certain facilities and services so as to facilitate the integration of these operations, while not compromising safety and security, duly addressing environmental implications, and, where necessary, ensuring that these new operations comply with the rules of the air in Annex 2 — *Rules of the Air*;

3. *Calls* on Member States to ensure that the common use by all users of airspace and certain facilities and services does not disproportionately affect the regularity, environmental protection and efficiency of civil and military operations; ~~and~~

4. *Recognizes* ICAO's role as an international forum to facilitate improved cooperation, collaboration and the sharing of best practices in support of regional initiatives, and to undertake the necessary follow-up activities that build on those initiatives by encouraging increased dialogue between States, New Entrants, existing aviation stakeholders and the space community~~.~~; and

5. *Declares* that this resolution supersedes A40-7.

Certification and health

31.50 The Commission reviewed A41-WP/70, presented by the International Air Transport Association (IATA), requesting a review of the upper age limit based on the latest scientific evidence due to pilot shortages and age being a potential barrier to pilot employment. The Commission supported the

proposal and requested that a review of the age limit of licensed aviation personnel be conducted. The Commission noted the ongoing work within the relevant expert groups, reviewing the upper age limit on the basis of the risk to aviation safety, within the operational context, by following an evidence-informed approach and considering the most recent scientific studies and State best practices.

31.51 The Commission reviewed A41-WP/256, presented by Australia and co-sponsored by New Zealand, proposing a change in the approach to medical certification due to mental illness, towards a salutogenic model that supports the individual maintaining engagement and accessing support within the aviation community. The Commission agreed that mental health is key to aviation safety and recognized the importance of a trust relationship, just culture and additional measures to support mental health in aviation personnel. The Commission noted the ongoing work of ICAO in the mental health domain and agreed to forward the proposal to consider the salutogenic approach to the relevant expert group.

31.52 The Commission reviewed A41-WP/357, presented by Venezuela (Bolivarian Republic of), supported by Argentina, Bolivia (Plurinational Republic of), Colombia, Ecuador, El Salvador, Guatemala, Guyana, Mexico, Panama, Paraguay, Peru, Surinam and Uruguay. The paper highlighted the need for assessing psychological and physical fitness, including conducting surveys and studies to explore the mental health status of aviation personnel. The Commission noted the ongoing work within the relevant ICAO expert groups, including developing a standardized approach to surveys relating to medical fitness. The Commission reviewed A41-WP/396, presented by the Dominican Republic, which proposed the development and implementation of preventive health programmes for air traffic controllers. The Commission recalled the health promotion Standards in Annex 1 — *Personnel Licensing* (Standards 1.2.4.2 and 1.2.4.3), noted the ongoing work of ICAO and recognized that more data is required to enhance the programmes. The Commission reviewed A41-WP/382, presented by Venezuela (Bolivarian Republic of), supported by Costa Rica, the Dominican Republic and Panama, which highlighted the importance of quality assurance competency training for aircraft maintenance personnel. The Commission noted the proposals, acknowledging that ICAO initiatives were in place to address the issues raised and acknowledged the willingness of certain States to offer support in the matter.

31.53 The Commission reviewed A41-WP/119, presented by China, which proposed to optimize the licensing system for aircraft maintenance personnel. The Commission noted the benefit of the proposal and recommended that the item be referred to the Council for further consideration, subject to existing priorities funded through the 2023 – 2025 Budget and the availability of extra budgetary resources.

31.54 The Commission reviewed A41-WP/165, presented by China, which proposed to take measures to strengthen aircraft type training standards/specification. The Commission evaluated the benefit of the proposition for better standardization, but determined that it warranted further study by the appropriate expert groups. The Commission recommended that the item be referred to the Council for further consideration, subject to existing priorities funded through the 2023 – 2025 Budget and the availability of extra budgetary resources

31.55 The Commission reviewed A41-WP/122, presented by the International Federation of Air Traffic Safety Electronics Associations (IFATSEA), which highlighted the need to update existing air traffic safety electronics personnel (ATSEP) cybersecurity training objectives and development of new ATSEP cybersecurity training objectives. The Commission recognized that cyber hazards were becoming a safety concern to the aviation industry, considering the increasing connectivity of its systems and

components. The Commission agreed to forward the content of A41-WP/122 to the appropriate expert group for further consideration, subject the approved Air Navigation Work Programme and triennial budget of the Organization.

31.56 The Commission reviewed A41-WP/99, presented by ICCAIA, A41-WP/101, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of ECAC, EUROCONTROL and co-sponsored by New Zealand and A41-WP/323, presented by Costa Rica and the International Federation of Air Line Pilots' Associations (IFALPA), which concerned the potential development of new concepts of extended minimum crew operations (eMCO) and single pilot operations (SiPO). The Commission noted the views expressed on safely integrating new technical developments in automation and the interests of different parties on the issues. It was agreed that further work was needed to develop a structured plan, based on a clear concept of operations, for safely addressing extended minimum crew operations, including potential single pilot operations to achieve at least an equivalent or higher level of safety compared to that achieved in current operations. The Commission recommended that the item be referred to the Council for further consideration, subject to existing priorities funded through the 2023 – 2025 Budget and the availability of extra budgetary resources.

31.57 The Commission noted the information paper provided by the United States (A41-WP/569).

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

[2] Aruba (Kingdom of the Netherlands), Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Dominican Republic, Uruguay and Venezuela (Bolivarian Republic of).

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

[4] 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.

[5] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Cote 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 and Zimbabwe.

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

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

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4/10/22

ASSEMBLY — 41ST SESSION

REPORT OF THE TECHNICAL COMMISSION ON AGENDA ITEM 33

(Presented by the Chairperson of the Technical Commission)

The attached report on Agenda Item 33 has been approved by the Technical Commission. Resolution 33/1 is recommended for adoption by the Plenary.

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

(7 pages)

Agenda Item 33: Other issues to be considered by the Technical Commission

Air traffic management, rescue firefighting and volcanic ash exercises

33.1 The Commission reviewed A41-WP/129, presented by Bangladesh, which provided information regarding issues faced by States in the Asia and Pacific (APAC) Region in describing flight information regions (FIRs) accurately. The Commission noted the status of the incorporation of FIR descriptions within the APAC Air Navigation Plan and encouraged coordination between neighbouring State(s) in support of the initiatives taken by the ICAO Regional Offices.

33.2 The Commission reviewed A41-WP/86, presented by Czechia on behalf of the Member States[1] of the European Union (EU), other Member States[2] of the European Civil Aviation Conference (ECAC), the European Organisation for the Safety of Air Navigation (EUROCONTROL) and co-sponsored by Brazil. The paper detailed concerns regarding the operation of state aircraft within airspace for which reduced vertical separation minimum (RVSM) is applicable and proposed the inclusion of a new Appendix to Assembly Resolution A40-4: *Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation*. While remaining cognizant of Article 3, *Civil and state aircraft*, of the Chicago Convention, the Commission supported the intent of the proposal and agreed that it be appropriately reflected under Appendix I of the resolution: *Coordination and cooperation of civil and military air traffic*. The Commission noted the recent and ongoing civil/military workshops conducted by ICAO, and agreed that the specific issues raised in A41-WP/86 be brought to the attention of the appropriate expert group(s).

33.3 In light of the discussion, the Commission agreed to submit, for adoption by the Plenary, the following resolution to supersede Assembly Resolution A40-4, Appendix I:

Resolution 33/1: Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation

Whereas in Resolution A15-9 the Assembly resolved to adopt in each session for which a Technical Commission is established a consolidated statement of continuing policies related specifically to air navigation up to date as at the end of that session;

Whereas a statement of continuing policies and associated practices related specifically to air navigation as they existed at the end of the ~~38~~40th Session of the Assembly was adopted by the Assembly in Resolution ~~A38-12~~A40-4, Appendices A to O inclusive;

Whereas the Assembly has reviewed proposals by the Council for the amendment of the statement of continuing policies and associated practices in Resolution ~~A38-12~~A40-4, Appendices A to O inclusive, and has amended the statement to reflect the decisions taken during the ~~40th~~41st Session;

Whereas a policy or associated practice that requires continued application for a period of more than three years should be regarded as a continuing policy or associated practice; and

Whereas material which is contained in regulatory or readily available authoritative ICAO documents, such as Annexes, Global Plans, rules of procedures and directives to air navigation meetings should normally be excluded from the consolidated statements, including, in particular, the associated practices;
The Assembly:

1. *Resolves* that:

   a) the appendices attached to this resolution constitute the consolidated statement of continuing air navigation policies and associated practices of ICAO as they exist at the close of the ~~40th~~41st Session of the Assembly; and

   b) the practices associated with the individual policies in the appendices constitute guidance intended to facilitate and ensure implementation of the respective policies.

2. *Requests* the Council to keep the consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation under review and advise the Assembly when changes are required to the statement; and

3. *Declares* that this resolution supersedes Resolution~~s A38-12~~A40-4 with its appendices and A15-9.

[…]

APPENDIX I

Coordination and cooperation of civil and military air traffic

Whereas the airspace is a resource common to both civil and military aviation, and given that many air navigation facilities and services are provided and used by both civil and military aviation;

Whereas the Preamble of the Convention on International Civil Aviation stipulates that signatories thereto had “agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically”;

Whereas Article 3 a) of the Convention states that “This Convention shall be applicable only to civil aircraft, and shall not be applicable to state aircraft” and Article 3 d) requires that “contracting States undertake, when issuing regulations for their state aircraft, that they will have due regard for the safety of navigation of civil aircraft”;

Recognizing that growing civil air traffic and mission-oriented military air traffic would benefit greatly from a more flexible use of airspace used for military purposes and that satisfactory solutions to the problem of cooperative access to airspace have not evolved in all areas;

Whereas the flexible use of airspace by both civil and military air traffic may be regarded as the ultimate goal, improvement in civil/military coordination and cooperation offers an immediate approach towards more effective airspace management; and

Recalling that the ICAO Global ATM Operational Concept states that all airspace should be a usable resource, any restriction on the use of any particular volume of airspace should be considered transitory, and all airspace should be managed flexibly; and

Whereas the application of reduced vertical separation minimum (RVSM) provides many benefits including additional airspace capacity, cost savings and reduced environmental impacts, it is predicated upon stringent aircraft height-keeping performance requirements, which can be impaired by even minor airframe modifications;

The Assembly resolves that:

1. the common use by civil and military aviation of airspace and of certain facilities and services shall be arranged so as to ensure the safety, regularity and efficiency of civil aviation as well as to ensure the requirements of military air traffic are met;

2. the regulations and procedures established by Member States to govern the operation of their state aircraft over the high seas shall ensure that these operations do not compromise the safety, regularity and efficiency of international civil air traffic and that, to the extent practicable, these operations comply with the rules of the air in Annex 2;

3. the Secretary General shall provide guidance on best practices for civil/military coordination and cooperation;

4. Member States may include, when appropriate, representatives of military authorities in their delegations to ICAO meetings; and

5. ICAO serves as an international forum that plays a role in facilitating improved civil/military cooperation, collaboration and the sharing of best practices, and to provide the necessary follow-up activities that build on the success of the Global Air Traffic Management Forum on Civil/Military Cooperation (2009) with the support of civil/military partners.

Associated practices

1. Member States should as necessary initiate or improve the coordination and cooperation between their civil and military air traffic services to implement the policy in Resolving Clause 1 above.

2. When establishing the regulations and procedures mentioned in Resolving Clause 2, the State concerned should coordinate the matter with all States responsible for the provision of air traffic services over the high seas in the area in question.

3. Member States should review existing practices to ensure that approval of state aircraft to operate in airspace where reduced vertical separation minimum (RVSM) is applicable is conducted either in compliance with, or in a manner equivalent to, associated height-keeping performance requirements and account for any subsequent airframe modifications. Furthermore, to the maximum extent practicable, Member States should facilitate the participation of applicable state aircraft in technical height-monitoring programmes to ensure continued compliance with such performance requirements, so as to implement the policy mentioned in Resolving Clauses 1 and 2 above.

~~3~~ 4. The Council should ensure that the matter of civil and military coordination and cooperation in the use of airspace is included, when appropriate, in the agenda of divisional and regional meetings, in accordance with Resolving Clauses 3, 4 and 5 above.

33.4 The Commission reviewed A41-WP/68, presented by Pakistan, which provided information regarding the existing and proposed measures to mitigate the impact of long-haul transit flights circumnavigating the Kabul FIR, so as to effectively manage the flow of international civil aviation, in a collaborative manner with neighbouring States. The Commission noted the activities of Pakistan and the contingency coordination team (CCT) established by ICAO in accordance with applicable provisions of Annex 11 — *Air Traffic Services*, to facilitate collaborative discussion and agreement, and encouraged active participation by all relevant stakeholders.

33.5 The Commission reviewed A41-WP/399, presented by Venezuela (Bolivarian Republic of), which presented a method for the risk analysis of uncoordinated entry of aircraft into RVSM airspace to assess the impact on operational safety. The Commission recalled the provisions in the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) pertaining to the responsibilities of an air traffic services unit that becomes aware of an unidentified aircraft in its area. The Commission noted the ongoing work of ICAO on RVSM and agreed that the contents of A41-WP/399 be brought to the attention of the appropriate expert group.

33.6 The Commission reviewed A41-WP/132, presented by the United Arab Emirates, which proposed enhancements to the process of airspace delineation over the high seas and non-sovereign airspace. The Commission recognized the need for more objective criteria to determine if proposed amendments to regional air navigation plans in this regard ensure safety and optimize efficiency and economy for both providers and users of the services. The Commission recommended that ICAO review and amend the applicable procedures and policy concerning airspace delineation, as deemed necessary, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra-budgetary resources. The Commission emphasized that any new criteria should not be applied retroactively.

33.7 The Commission reviewed A41-WP/278, presented by Venezuela (Bolivarian Republic of), which provided information regarding the State’s initiative to develop specialized training on accident investigation for members of rescue and firefighting services (RFFS) in response to the demand for quality and expertise during initial aircraft accident investigation tasks at an accident site. The Commission highlighted that RFFS must focus on performing RFF tasks and that any aircraft accident investigation training for RFFS should be limited to tasks for preserving the accident site and protecting evidence of transitory nature until the accident investigation team arrives on site.

33.8 The Commission reviewed A41-WP/398, presented by Venezuela (Bolivarian Republic of), and supported by Bolivia (Plurinational State of), Dominican Republic and Panama, concerning an expanded role of the RFFS to raise safety standards in fire and/or accident prevention at airport facilities. The Commission acknowledged the importance of safety and prevention activities to be carried out by the RFFS, subject to the condition that such activities do not impair their primary responsibility of saving lives in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

33.9 The Commission reviewed A41-WP/346 Revision No.1, presented by New Zealand, which highlighted the importance of regular simulated volcanic ash exercises to ensure maximum preparedness for volcanological events. Noting that regular volcanic ash exercises are implemented in each ICAO region, the Commission encouraged Member States to continue collaboration with ICAO in this regard, including follow-ups on lessons learned. The Commission also highlighted the importance of implementing appropriate communications infrastructure for effective dissemination of Volcano Observatory Notice for Aviation (VONA).

Miscellaneous

33.10 The Commission reviewed A41-WP/175, presented by Czechia on behalf of the Member States[1] of the EU, other Member States[2] of ECAC, Canada and EUROCONTROL, co-sponsored by Brazil, New Zealand and the International Coordinating Council of Aerospace Industries Associations (ICCAIA); A41-WP/255, presented by the United States; and A41-WP/421, presented by Venezuela (Bolivarian Republic of), supported by Costa Rica, the Dominican Republic and Panama. The Commission noted the proposals for the further development of the International Aviation Trust Framework (IATF) in A41-WP/175 and A41-WP/255, as well as the progress and planned actions in the development and application of an Information Security Management System (ISMS) to air navigation services (ANS) in A41-WP/421. The Commission noted that the development of information security requirements was already ongoing and that the establishment of a new expert group was also underway. In this regard, the Commission agreed that the contents of the papers be brought to the attention of the expert group.

33.11 The Commission reviewed A41-WP/90, presented by Iran (Islamic Republic of), which highlighted the benefits and challenges of using artificial intelligence (AI) systems in aviation. The Commission noted that established ICAO expert groups which address data, analysis and innovations were already considering the use of AI. Noting the ongoing applicability of A40-27: *Innovation in aviation*, the Commission agreed to refer the content of A41-WP/90 to the appropriate expert groups.

33.12 The Commission reviewed A41-WP/337, presented by Colombia, supported by Argentina, Bolivia, Brazil, Chile, Ecuador, El Salvador, Guyana, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of), which presented the implementation status of automatic dependent surveillance — broadcast (ADS-B) in the South American (SAM) Region. Noting the good progress made by States in the SAM Region and ongoing efforts of ICAO on global and regional levels for ADS-B implementation support, including information sharing, the Commission agreed that the contents of A41-WP/337 be referred to the appropriate expert groups.

33.13 The Commission reviewed A41-WP/183, presented by the United Arab Emirates, regarding the use of digital documents on board aircraft. The paper highlighted the need to develop guidance on the use of such formats and for States to accept them as valid. The Commission noted that the task was already being progressed and agreed to refer the contents of A41-WP/183 to the relevant expert group.

33.14 The Commission reviewed A41-WP/338, presented by Chile, and supported by 20 LACAC Member States[3], Guyana and Suriname. The paper highlighted the necessity to incorporate training and certification practices that are adaptable to new technologies and processes faced by air traffic controllers operating current and future systems, in line with competency-based training and

assessment (CBTA). The Commission recalled Assembly Resolution A40-25*: Implementing Aviation Training and Capacity-Building Strategies*, noted the ongoing work of ICAO on this matter and agreed to refer the details of A41-WP/338 to the relevant expert group.

33.15 The Commission reviewed A41-WP/215, presented by the United Arab Emirates, regarding the approach taken in their State towards implementing dangerous goods CBTA. Acknowledging, with appreciation, the offer of the United Arab Emirates to invite the Member States to its training sessions, the Commission agreed to refer the contents of A41-WP/215 to the relevant expert group.

33.16 The Commission reviewed A41-WP/299, presented by Singapore and the Flight Safety Foundation (FSF), which highlighted the safety pressures resulting from actions taken outside aviation and proposed the implementation of explicit arrangements for regulatory safety assessment and cooperation. The Commission acknowledged that the establishment of a new expert group that would address integrated risk management was underway and agreed to refer the contents of A41-WP/299 to that expert group.

33.17 Information papers provided by: Brazil (A41-WP/288 and A41-WP/291); Cameroon (A41-WP/334); Canada, Japan, Singapore, Thailand, and the United States (A41-WP/499); China (A41-WP/450 and A41-WP/462); Member States[4] of the Central American Corporation for Air Navigation Services (COCESNA) (A41-WP/417 and A41-WP/565); the Dominican Republic (A41-WP/305, A41-WP/307 and A41-WP/394); India (A41-WP/566); Indonesia (A41-WP/505 and A41-WP/508); Iran (Islamic Republic of) (A41-WP/113, A41-WP/114 and A41-WP/308); Oman (A41-WP/464); the Republic of Korea (A41-WP/548 and A41-WP/535); Saudi Arabia (A41-WP/512, A41-WP/519 and A41-WP/525); Venezuela (Bolivarian Republic of), supported by Bolivia (Plurinational Republic of), the Dominican Republic and Panama (A41-WP/383 and A41-WP/506); the United States (A41-WP/496, A41-WP/497, A41-WP/500, A41-WP/501 and A41-WP/600); Airports Council International (ACI) (A41-WP/593) and the International Coordinating Council of Aerospace Industries Associations (ICCAIA) (A41-WP/269) were noted.

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

[2] 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] Argentina, Aruba (Kingdom of the Netherlands), 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).

[4] Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

International Civil Aviation Organization

WORKING PAPER

A41-WP/45
TE/3
9/6/22

ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 30: Aviation Safety and Air Navigation Policy
30.2: Latest developments related to the Global Air Navigation Plan (GANP)

A COMPREHENSIVE STRATEGY FOR AIR NAVIGATION: ENDORSEMENT OF THE UPDATED GLOBAL AIR NAVIGATION PLAN

(Presented by the Council of ICAO)

EXECUTIVE SUMMARY

The ICAO Assembly, at its 39th Session, agreed on the expansion of the GANP lifecycle through three -year minor and six-year major updates, as relevant, in order to provide for stability. While the sixth edition of the GANP, endorsed at the 40th Session of the Assembly, constituted a major update, a seventh edition, containing minor updates, is proposed in this working paper for endorsement by the ICAO Assembly during its 41st Session. In particular, this proposal includes an update to the safety key performance area of GANP performance framework, as well as a maintenance process to keep it current. It highlights the importance of a robust air navigation system for achieving the expected levels of safety and resilience, and maps the essential services outlined in the Basic Building Block (BBB) framework to the Protocol Questions (PQs) of the Universal Safety Oversight Audit Programme (USOAP). Minor updates to the BBB and the Aviation System Block Upgrade (ASBU) frameworks are also proposed. It also highlights the proposed focus of the eighth edition of the GANP based on the challenges faced by the aviation community to achieve its vision.

Action: The Assembly is invited to:

a) endorse the seventh edition of the *Global Air Navigation Plan* (GANP, Doc 9750), available in an interactive format via the GANP Portal;
b) request Member States, planning and implementation regional groups (PIRGs) and all members of the aviation community to continue improving the air navigation system in line with the GANP so that it adapts to global, regional and local opportunities and challenges in a timely and orderly manner; and
c) adopt the proposed revision to Assembly Resolution A40-1, as presented in Appendix B to this paper, in so far as it refers to the GANP.

Strategic Objectives:	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives.
Financial implications:	The ICAO activities referred to in this paper are expected to be undertaken within the resources available in the 2023-2025 Regular Programme Budget and/or from extra budgetary contributions as guided by the ICAO Business Plan 2023-2025.

References:	Doc 10160, *High-Level Conference on COVID-19 (Montréal, 12 to 22 October 2021). Report* Doc 10140, *Assembly Resolutions in Force (as of 4 October 2019)* Doc 10118, *Global Aviation Security Plan* Doc 10115, *Thirteenth Air Navigation Conference. Montréal, 9 – 19 October 2018. Report* Doc 10004, *Global Aviation Safety Plan* Doc 9883, *Manual on Global Performance of the Air Navigation System* Doc 9854, *Global Air Traffic Management Operational Concept* Doc 9750, *Global Air Navigation Plan, 6th Edition* Appendix C to the GSG-GIPEG/2-SD, *Development of a proposed update to the Safety Performance Framework in the GANP* (icao.int)

1. INTRODUCTION

1.1 The ICAO Assembly, at its 39th Session, agreed on the expansion of the GANP lifecycle through three-year minor and six-year major updates, as relevant, in order to provide for stability. While the sixth edition of the GANP, endorsed by the Assembly at its 40th Session, constituted a major update, a seventh edition, containing minor updates, is hereby proposed for endorsement.

1.2 The ICAO Assembly, at its 40th Session, endorsed the sixth edition of the Global Air Navigation Plan[1] (GANP, Doc 9750) through Resolution A40-1: ICAO global planning for safety and air navigation. This edition recognizes that a performance-driven, service-oriented and technologically advanced global air navigation system is critical to achieve the sustainability of the aviation sector worldwide. Furthermore, it recognizes safety as one of the fundamental principles of aviation performance, together with environment, security and economic sustainability.

1.3 In addition to these fundamental aviation principles, there are several performance requirements, in areas such as capacity and efficiency, that the air navigation system must meet to fulfil the expectations of the aviation community and society-at-large. The crisis caused by the COVID-19 pandemic in 2020 highlighted the importance of resilience of the aviation system, not only as a performance requirement but also as a fundamental principle, in terms of economic sustainability as well as safety management, to ensure that safety risks are effectively addressed. While it is anticipated that the reduced economic resources in the coming years due to the pandemic may affect the modernization of the air navigation system and jeopardize performance monitoring, neither safety nor resilience expectations can be achieved without a robust air navigation system. Two key aspects are needed to achieve such a system: the provision of essential air navigation services; and the oversight of these services.

1.4 The seventh edition of the GANP focuses on the global technical level and is the result of the accomplishments made by the GANP Study Group (GANP-SG) and its working groups, the Aviation System Block Upgrades Panel Project Team (ASBU PPT) and the GANP Performance Expert Group (GANP-PEG), since the 40th Session of the ICAO Assembly.

[1] Available at the GANP Portal at https://www4.icao.int/ganpportal/

2. SEVENTH EDITION OF THE GANP

Update of the GANP performance framework – Safety

2.1 The sixth edition of the GANP contains the GANP performance framework, which includes at the Global Strategic Level a series of performance ambitions within the eleven key performance areas (KPAs)[2] outlined in the Global Air Traffic Management Operational Concept (Doc 9854). At the Global Technical Level, the framework details focus areas, performance objectives and key performance indicators (KPIs) within the KPAs of capacity, efficiency and predictability.

2.2 In order to expedite the work on performance, Recommendation 4.3/1, *Improving the performance of the air navigation system,* of the Thirteenth Air Navigation Conference (AN-Conf/13), called upon ICAO to consider establishing a group of performance experts under the GANP-SG. ICAO, therefore, formed the GANP Performance Expert Group (GANP-PEG), formerly known as the Global ICAO Performance Expert Group (GIPEG), to maintain and evolve the performance framework of the GANP, focusing on its effective application by all members of the aviation community at the regional and national levels. One of the tasks of the GANP-PEG is to expand the performance framework of the GANP to cover the eleven KPAs and, in particular, to contribute to the coherency and consistency related to performance management aspects shared by the GANP, the *Global Aviation Safety Plan* (GASP, Doc 10004) and the *Global Aviation Security Plan* (GASeP) (Doc 10118).

2.3 ICAO called for safety experts to collaborate with the GANP-PEG and update, following the *Manual on Global Performance of the Air Navigation System* (Doc 9883), the safety performance framework for inclusion in the seventh edition of the GANP to: ensure an integrated approach to performance management; provide a link between the GANP and the GASP; and offer a coordinated approach to safety performance measurement, as requested by the High-Level Conference on COVID-19 (HLCC-2021). The proposed safety performance framework identifies a common high-level safety performance ambition as well as focus areas, performance objectives and key performance indicators (KPIs) that cover all aspects of the aviation system, allowing the GANP to consider safety in an integrated way within its other 10 KPAs. At the same time, it provides a shared safety related terminology for the GANP and the GASP, promoting consistency across the two global plans.

2.4 A summary of the proposed update to the safety KPA of the GANP performance framework, including a new performance ambition as well as new focus areas, performance objectives and KPIs, is presented in Appendix A to this working paper. Further details can be found at: https://www4.icao.int/ganpportal/GIPEGSafetyPerformanceFrameworkAnalysis.

2.5 To keep the GANP performance framework current and improve transparency, a maintenance process for the GANP performance framework is proposed in line with the maintenance process approved for the ASBU framework (see paragraph 2.13). The proposed GANP performance framework maintenance process is available in the GANP Portal (click **here**).

The Basic Building Blocks (BBBs) and the Universal Safety Oversight Audit Programme (USOAP)

2.6 The sixth edition of the GANP includes the BBB framework, which outlines the foundation of any robust air navigation system by identifying the essential services to be provided for international civil aviation in accordance to ICAO Standards. These essential services are defined in the areas of aerodromes, air traffic management, search and rescue, meteorology and aeronautical information, and

[2] The eleven KPAs of the GANP: safety, security, environment, cost-effectiveness, capacity, efficiency, flexibility, predictability, access and equity, participation by the ATM community and global interoperability.

implemented according to the Regional Air Navigation Plans. In addition to essential services, the BBB framework identifies the end users of these services as well as the assets (communications, navigation, and surveillance (CNS) infrastructure) that are necessary to provide them.

2.7 In 1999, ICAO launched the Universal Safety Oversight Audit Programme (USOAP), in response to widespread concerns about the effectiveness of aviation safety oversight around the world. USOAP audits focus on a State's capability to provide safety oversight by assessing whether the State has effectively and consistently implemented the critical elements (CEs) of a safety oversight system. This enables the State to ensure the implementation of ICAO's safety-related Standards and Recommended Practices (SARPs) and associated procedures and guidance material.

2.8 To provide the link between these two fundamental aspects of any robust air navigation system, the provision of essential services for international civil aviation and the capability to oversee them by the State, ICAO has mapped the essential services outlined in the BBB framework to the Protocol Questions (PQs) of the USOAP. The result of this mapping demonstrates that the BBBs relate primarily to critical elements six "CE-6 Licensing, certification, authorization and/or approval obligations" and seven "CE-7 Surveillance obligations" as detailed at this web portal https://www4.icao.int/ganpportal/bbbsusoapmapping. This mapping facilitates the analysis of the impact that the provision of essential air navigation services and the capability to oversee them, have on safety performance. The provision of essential air navigation services by an ANSP is measured through the deficiencies against the Regional Air Navigation Plans, whilst the capability of States to oversee said provision is measured through Effective Implementation (EI). The outcome of both aspects on safety performance can be measured through the KPIs proposed in Appendix A to this paper.

The Aviation System Block Upgrade (ASBU) framework and the Basic Building Block (BBB) framework

2.9 During its 40th Session, the ICAO Assembly approved the ASBU framework maintenance process available in the GANP Portal (click **here**). According to this process, the framework is to be updated on a three -year cycle and the present update is considered minor.

2.10 Following the maintenance process, the ASBU framework has been updated through a campaign whose scope was to update the content of ASBU framework from a factual perspective, e.g. process delays, change descriptions; review consistency, completeness and understanding; and prepare the scope/plan for the next (major) update. The report of the campaign, including its result, is available in the GANP Portal (click **here**). The review of the ASBU framework also resulted in an update to the BBB framework included in the report.

3. OUTLOOK FOR THE EIGHTH EDITION OF THE GANP

3.1 The Global Strategic Level of the GANP recognizes digital information management and full connectivity through the internet of aviation as key steps towards a total performance management system.[3] In a fully connected digital air navigation system, cyber threats, which are constantly evolving through the analysis of online behaviours and trends, pose a risk to the safety of flight operations that must be addressed. In addition to safety, environment and security are fundamental aviation principles recognized by the GANP.

3.2 The COVID-19 crisis has proven to be a challenge for the safety and resilience of the aviation system. Furthermore, the economic impact of the COVID-19 pandemic on the aviation industry

[3]See Global Air Navigation Plan Strategy (EN) - THE CONCEPTUAL ROADMAP | Rise (icao.int)

had forced the re-evaluation of priorities at regional and national levels that may risk the achievement of the GANP vision.

3.3 In order to ensure continuous progress in the evolution of the air navigation system, it is proposed that a fresh approach is developed to achieve the vision and performance ambitions outlined in the GANP. Therefore, it is proposed that the next edition of the GANP focuses on resilience and environment, and includes the following structural improvements:

a) the development of the link between the global strategic and technical levels;

b) the integration of innovation opportunities to embrace emerging technologies and accommodate new entrants;

c) the improvement of the performance dimension to ensure the optimum allocation of resources;

d) the development of evolution scenarios to provide opportunities for so-called leapfrogging, modernizing rapidly through the adoption of modern systems without going through intermediary steps; and

e) continue to ensure that the GANP is aligned with other ICAO Global Plans.

4. ASSEMBLY RESOLUTION

4.1 In accordance with Assembly Resolution A40-1, the GASP and the GANP support the Strategic Objectives of the Organization. The partial draft resolution presented in Appendix B to this paper focuses on the GANP, thus superseding A40-1: *ICAO Global planning for safety and air navigation*.

4.2 When reviewing the resolution in the appendix, and for the purposes of this paper, please refer only to the preamble and Appendix B, dealing specifically with GANP.

5. CONCLUSION

5.1 A performance-driven, service-oriented and technologically advanced global air navigation system is critical to achieve the sustainability of the aviation sector worldwide. Recognizing safety as one of the fundamental principles of aviation performance as well as the increasing importance of resilience in a hyperconnected aviation ecosystem, the seventh edition of the GANP presents an updated safety performance framework and maintenance process, reinforces the importance of having a robust foundation of the air navigation system and presents a minor update of the BBB and ASBU frameworks.

5.2 Also, based on the challenges faced by the aviation community to achieve the GANP vision, it is proposed that the eight edition of the GANP develops a fresh approach focusing on resilience and environment, while working towards the digitalization of a fully connected air navigation system.

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APPENDIX A

PROPOSED UPDATE OF THE GANP PERFORMANCE FRAMEWORK

Note. — Please note that only the bolded text with a grey highlight are proposed to be included in the seventh edition of the GANP.

1. The proposed update to the Global Air Navigation Plan (GANP) performance framework focuses on safety, one of the eleven Key Performance Areas (KPAs) of the GANP. The sixth edition of the GANP includes a safety performance ambition and safety performance objectives related to the operational improvements defined in the Aviation System Block Upgrade (ASBU) framework.

2. The main goal of this update to the safety performance framework in the GANP is to contribute to the coherency and consistency related to performance management aspects shared by the GANP, the Global Aviation Safety Plan (Doc 10004) and the Commercial Aviation Safety Team (CAST)/ International Civil Aviation Organization (ICAO) Common Taxonomy Team (CICTT)[1].

3. **Safety performance ambition**

3.1 Performance ambitions are outlined in the Global Strategic Level of the GANP. They are qualitative statements providing global priorities on the performance evolution of the global air navigation system. They should not be seen as a target to continuously monitor and report performance against, but rather as a catalyst for change.

3.2 Both the safety performance ambition and the aspirational safety goal, in the GANP and the GASP, respectively, seek the improvement of safety performance. However, the current safety ambition in the GANP[2] *"Zero ANS-related accidents and a significant 50 per cent reduction of –ANS-related- serious incidents"* shows a difference in scope from the aspirational goal defined by the GASP *"Achieve and maintain zero fatalities in commercial operations by 2030 and beyond"*. In particular: while the performance ambition covers all types of operations, the aspirational goal focuses on commercial operations; while the ambition focuses on air navigation service (ANS)-related causes, the aspirational goal covers all causes and contributing factors to occurrences; and while the ambition covers zero accidents and a reduction in incidents, including the amount of damage and its secondary impact, the aspirational goal focuses on zero fatalities.

3.3 In order to ensure a common direction in safety performance, it is important to harmonize the scope of the safety performance ambition in the GANP to address the combined scope of the GANP and the GASP. Therefore, the safety performance ambition in the sixth edition of the GANP is proposed to be updated as follows:

"Achieve continual safety performance improvement in aviation in each ICAO region"

[1] Historically, in accident and incident investigations, safety occurrences are categorized in a different way namely using the CICTT occurrence categories Welcome (intlaviationstandards.org).

[2] While the highest safety expectation was referred to as safety performance ambition in the GANP, in the GASP it was called aspirational safety goal.

4. Safety focus areas

4.1 Focus areas are outlined in the global technical level of the GANP. They identify and delineate the broad areas in which there are intentions to establish a performance policy via the definition of performance objectives. There is a need for a minimum number of focus and sub-focus areas to attach the performance objectives within the sixth edition of the GANP and the goals in the GASP as well as to cover the areas in which safety data is collected and reported related to the CICTT.

4.2 The sixth edition of the GANP did not define safety focus areas. Therefore, in order to avoid overlapping of performance policies, the following focus and sub-focus areas within the safety KPA are proposed to be included in the seventh edition of the GANP:

KPA: Safety

Operational safety outcomes

- **Flight operations safety**
  - **Safety of traditional operations**
  - **Safety of new entrants**
    - **Safety of remotely piloted aircraft systems (RPAS) operations**
    - **Safety of very low level operations (typically operating below 500ft AGL)**
    - **Safety of higher airspace operations**
    - **Safety of advanced and urban air mobility**
- **Aerodrome operations safety**
- **Air navigation service provision safety**
- **Aircraft maintenance safety**
- **Design and manufacturing safety**

Organizational safety processes

- **State safety programme (including safety oversight)**
- **Safety management system**
- **Safety collaboration**

Provision of infrastructure and aviation services

- **Basic Building Blocks**
- **Operational safety improvements**

Note.— The scope within the operational focus areas is limited to aviation safety. For example, while each time an aircraft design flaw is identified during operations would count as an aviation

safety occurrence under design and manufacturing safety, an occupational health and safety event at the manufacturing premises of an aircraft is outside the scope of the design and manufacturing focus area and would not count as an aviation safety occurrence. Processes that impact the aviation safety outcomes should be found under organizational safety.

5. Safety performance objectives

5.1 Performance policy is defined through a set of specific, measurable, achievable, relevant and timely (SMART) objectives.

5.2 The performance objective for the safety KPA in the sixth edition of the GANP is to maintain or improve safety. Aligned with this performance objective, the following generic sub-objectives are defined within the proposed safety focus and sub-focus areas:

Note.— Sub-objectives in bold with grey highlights are new and are proposed to be included in the seventh edition.

- **Maintain or improve operational safety outcomes**
    - **Maintain or improve safety of flight operations**
        - **Maintain or improve safety of traditional operations**
        - **Maintain or improve safety of new entrants**
            - **Maintain or improve safety of remotely piloted aircraft systems (RPAS) operations**
            - Maintain or improve safety of very low-level operations
            - Maintain or improve safety of higher airspace operations
            - **Maintain or improve safety of advanced and urban air mobility**
    - **Maintain or improve safety of aerodrome operations**
    - **Maintain or improve safety of the air navigation service provision**
    - **Maintain or improve safety in aircraft maintenance**
    - **Maintain or improve safety in design and manufacturing**

- **Maintain or improve organizational safety processes**
    - **Strengthen State safety oversight capabilities**
    - **Increase the implementation of States' safety programmes**
    - **Improve safety management systems implementation**
    - **Increase safety enhancement initiatives**
    - **Improve safety collaboration at global, regional and national levels**

- **Maintain or improve the provision of infrastructure and aviation services**
    - **Enhance the implementation of the Basic Building Blocks**
    - **Optimize the implementation of operational safety improvements within the ASBU framework**

5.3 These performance objectives and sub-objectives allow for the mapping of the goals outlined in the GASP as follows:

a) Goal 1 of the GASP "*Achieve a continuous reduction of operational safety risks*" was mapped to the safety performance sub-objective "Maintain or improve safety of traditional flight operations" since the scope of Goal 1 was not limited to the set of five High Risk Categories (HRC) but covered all risk categories (the HRC are a subset of the full set of risk categories);

b) Goal 2 of the GASP *"Strengthen States' safety oversight capabilities"* was mapped to the sub-objective "Strengthen State safety oversight capabilities";

c) Goal 3 of the GASP *"Implement effective State safety programmes"* was mapped to the sub-objective "Increase the implementation of States' safety programmes";

d) Goal 4 of the GASP *"Increase collaboration at the regional level"* was mapped to two sub-objectives "Increase safety enhancement initiatives" and "Improve safety collaboration at global, regional and national levels";

e) Goal 5 of the GASP *"Expand the use of industry programmes and safety information sharing networks by service providers"* was mapped to two sub-objectives: "Improve safety management systems implementation" of the industry and "Improve safety collaboration at global, regional and national levels"; and

f) Goal 6 of the GASP *"Ensure the appropriate infrastructure is available to support safe operations"* was mapped to the sub-objectives: "Strengthen States' safety oversight capabilities", as well as "Enhance the implementation of the Basic Building Blocks" and "Optimize the implementation of operational safety improvements within the ASBU framework" under the sub-objective "Maintain or improve the provision of infrastructure and aviation services".

5.4 In addition, in order to address the CICTT occurrence categories as well as to integrate the safety performance sub-objectives of the GANP sixth edition and the expected safety outcomes from the implementation of certain operational improvements in the ASBU framework, the following performance sub-objective tree is proposed under "Maintain or improve safety of traditional operations":

Note.— Sub-objectives in bold with grey highlights are new and are proposed to be included in the seventh edition of the GANP; New sub-objectives from the mapping of the two approaches are marked with (*); those marked with (**) have safety contributions from ASBU Elements.

- **Maintain or improve safety of traditional operations**
    - **Maintain or improve safety on the ramp (aircraft not moving)**

- Maintain or improve safety during surface movement (**)
  - **Reduce the risk of taxiway and apron aircraft/aircraft collisions**
    - Improve collision avoidance during taxi operations (safety net) (**)
  - **Reduce the risk of other collisions while using taxiways and aprons**
    - **Avoid collisions with ground vehicles and mobile equipment on taxiways and aprons (*)**
    - **Avoid collisions with animals or humans on taxiways and aprons (*)**
    - **Avoid collisions with obstacles and buildings (*)**
    - **Avoid encounters with FOD and/or patches of poor taxiway or apron condition (*)**
  - **Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of taxiways and aprons**
    - Avoid incorrect taxiing (cases of non-conformance with clearance) (**)
    - Avoid flights attempting to land/take-off on/from taxiways
    - Improve early detection of conflicting ATC Clearances (CATC) related to taxi operations (**)
- Maintain or improve safety on the runway (**)
  - **Reduce the risk of runway aircraft/aircraft collisions**
    - Improve runway collision avoidance (safety net) (**)
  - **Reduce the risk of other collisions while using the runway**
    - Improve runway collision avoidance (safety net) (**)
    - **Avoid bird strike while on the runway (*)**
    - **Avoid collisions with animals or humans on the runway (*)**
    - **Avoid encounters with FOD and/or patches of poor RWY condition (*)**
    - **Avoid wake vortex encounters on the runway (*)**
  - **Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of runways**
    - Reduce number of runway incursions

- Avoid incorrect entries of aircraft or vehicles onto the runway protected area (without or contrary to ATC clearance or due to incorrect ATC clearance) (**)
- Avoid incorrect presence of vacating aircraft or vehicles onto the runway protected area (**)
- Avoid incorrect runway crossings by aircraft or vehicles (without or contrary to ATC clearance or due to incorrect ATC clearance) (**)
- Avoid incorrect spacing between successive arriving or arriving and departing or departing and arriving or successive departing aircraft
- Avoid landings without ATC clearance
- Avoid landings on wrong runway at right airport
- Avoid landings at wrong airport
- Avoid take-offs without ATC clearance

▪ Improve early detection of conflicting ATC Clearances (CATC) related to runway usage (**)

▪ Avoid runway excursions

- **Maintain or improve safety in the air**
  - **Reduce the risk of mid-air collisions (aircraft/aircraft)**
    - ▪ Improve mid-air collision avoidance (safety net) (**)
    - ▪ Improve separation provision (at a planning horizon > 2 minutes) (**)
    - ▪ Improve early detection of conflicting ATC Clearances (CATC) (en-route / departure / approach) (**)
  - **Reduce the risk of other collisions while airborne**
    - ▪ **Avoid bird strike while airborne (*)**
    - ▪ Avoid vertical & lateral navigation errors during flight (cases of non-conformance with clearance) (**)
    - ▪ Avoid unauthorized penetration of segregated airspace (**)
    - ▪ Avoid controlled flight into terrain (CFIT) and obstacle collision risk (**)
  - Reduce the risk of non-collision related occurrences
    - ▪ Avoid hazardous weather (including turbulence)
    - ▪ Avoid volcanic ash

- Avoid en-route wake vortex encounters (**)
- Avoid exposure to hazardous space weather
- **Avoid exposure to laser light (*)**
- **Avoid being shot down (*)**
- **Avoid flight into conditions which are in itself non-hazardous, but beyond the capabilities of aircraft or crew (*)**

- **Maintain or improve safety on-board**

Note.— The GANP performance framework is a living framework to be updated through a proposed Maintenance process (see paragraph 2.5 of the working paper). Performance indicators can be mapped at any level of the performance objectives and sub-objectives tree, however, they should be mapped at the lowest level possible.

6. Safety key performance indicators (KPIs)

6.1 Some objectives require precisely defined numerical performance indicators, which serve to establish quantitative measures that, collectively, will indicate progress towards achieving an objective. In order to facilitate this task, the sixth edition of the GANP contains, in its global technical level, a list of 19 KPIs[3] within the KPAs of capacity, efficiency and predictability. These KPIs are associated to the generic performance objectives in the GANP and can be tailored to regional and national instantiated performance objectives.

6.2 The following safety KPIs are proposed to be included in the seventh edition of the GANP:

KPI ID	**KPI20**
KPI Name	**Number of aircraft accidents**
Definition	'Accident' is defined in ICAO Annex 13, Chapter 1-Definitions ADREP: Accident Data Report
Measurement Units	Number of accidents / year
Operations measured	Aircraft accidents during all flight phases that occurred in a year within the State/Region of occurrence.
Variants	Variant 1 (GASP): Aircraft MTOW > 2 250 kg 1.1 National accident occurrence level 1.2 Regional accident occurrence level Variant 2: All aircraft 2.1 National accident occurrence level 2.2 Regional accident occurrence level
Object(s) characterized	The KPI is typically computed for individual State, or Region (selection/grouping based on geography)
Utility of the KPI	High-level measurement of safety performance of the aviation system as a whole.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Occurrence Category State of occurrence

[3] The list and details of the KPIs are available at https://www4.icao.int/ganpportal/ASBU/KPI.

KPI ID	KPI20
Data feed providers	ICAO ADREP database iSTARS Application "ADREP et al."
Formula/ algorithm	Count accidents if: a) The local date of occurrence is in between 01 January and 31 December of the year in question; b) It is of the type that is notifiable to ICAO; c) The circumstances of the accidents match the definition of Annex 13 definition of 'Accident'; and d) If variant 1, the aircraft involved in the accident is of maximum take-off mass of over 2 250 kg.
References and examples of use	ADREP: Accident Data Report https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

KPI ID	KPI21
KPI Name	**Number of runway incursions**
Definition	Number of occurrences at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. (CICTT Taxonomy definition)
Measurement Units	Number of runway incursions / year
Operations measured	The actual number of runway incursions at an aerodrome
Variants	None
Object(s) characterized	The KPI is computed for individual aerodrome
Utility of the KPI	This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Airport of occurrence
Data feed providers	Airports and airlines
Formula/ algorithm	Count number of runway incursions: a) the local date of occurrence in between 01 January and 31 December of the year in question; and b) the circumstances of the occurrence match the definition of CICTF 'RI'; or the occurrence category has been determined to be runway incursion – vehicle, aircraft or person (RI-VAP).
References and examples of use	https://www.mot.gov.sg/docs/default-source/default-document-library/runway-incursion-by-vehicle-in-seletar-airport-7-apr-2018-final-reportcecc69af7fde4718ad39b5127822a05f.pdf https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

KPI ID	KPI22
KPI Name	**Number of runway excursions**
Definition	Number of veer offs or overruns of the runway surface.
Measurement Units	Number of runway excursions / year
Operations measured	• Only applicable during either the takeoff or landing phase. • The excursion may be intentional or unintentional. For example, the deliberate veer off to avoid a collision, brought about by a Runway Incursion. In this case, code both categories. • Use RE in all cases where the aircraft left the runway/helipad/helideck regardless of whether the excursion was the consequence of another event.
Variants	None
Object(s) characterized	The KPI is computed for individual aerodrome
Utility of the KPI	This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Airport of occurrence
Data feed providers	Airports and airlines
Formula/ algorithm	Count number of runway excursions: a) the local date of occurrence in between 01 January and 31 December of the year in question; b) the circumstances of the occurrence match the definition of CICTT 'RE'; and c) the Occurrence Category has been determined to be runway excursion (RE).
References and examples of use	https://www.mot.gov.sg/docs/default-source/default-document-library/t-50-runway-excursion-in-changi-airport-6-feb-18-final-report.pdf https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

KPI ID	KPI23
KPI Name	**Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)**
Definition	Number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight.
Measurement Units	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC) / year
Operations measured	• Includes all collisions between aircraft while both aircraft are airborne. • Both air traffic control and cockpit crew separation-related occurrences are included. • Genuine TCAS alerts are included here.
Variants	Variant 1: Number of airproxes Variant 2: TCAS alerts Variant 3: loss of separation Variant 4: near midair collisions Variant 5: midair collisions (MAC)
Object(s) characterized	The KPI is computed for volumes of airspace as designated by the State.
Utility of the KPI	This KPI gives an indication of safety performance improvement in the air.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence

KPI ID	KPI23
	FIR of occurrence
Data feed providers	ANSPs and airlines
Formula/ algorithm	Count number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight: a) the local date of occurrence in between 01 January and 31 December of the year in question; b) the circumstances of the occurrence match the definition of CICTT 'MAC'; and c) the Occurrence Category has been determined to be airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC).
References and examples of use	https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

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APPENDIX B
DRAFT RESOLUTION FOR ADOPTION BY THE 41ST SESSION OF THE ASSEMBLY

A41-xx: ICAO global planning for safety and air navigation

Whereas ICAO strives to achieve the goal of a safe and orderly development of civil aviation through cooperation among Member States and other stakeholders;

Whereas to realize this goal, the Organization has established Strategic Objectives, including objectives for safety and for capacity and efficiency;

Recognizing the importance of global frameworks to support the Strategic Objectives of ICAO;

Recognizing the importance of effective implementation of regional and national plans and initiatives based on the global frameworks;

Recognizing that further progress in improving the global safety, capacity and efficiency of civil aviation is best achieved through a cooperative, collaborative and coordinated approach in partnership with all stakeholders under the leadership of ICAO; and

Noting the approval by the Council of the ~~third~~ 2023-2025 edition of the Global Aviation Safety Plan (GASP) and of the ~~sixth~~ seventh edition of the Global Air Navigation Plan (GANP);

The Assembly:

1. *Endorses* the ~~third~~ 2023-2025 edition of the Global Aviation Safety Plan (GASP) and the ~~sixth~~ seventh edition of the Global Air Navigation Plan (GANP) as the global strategic directions for safety and air navigation, respectively;

2. *Resolves* that ICAO shall implement and keep current the GASP and the GANP to support the relevant Strategic Objectives of the Organization, while ensuring necessary stability;

3. *Resolves* that these global plans shall be implemented and kept current in close cooperation and coordination with all concerned stakeholders;

4. *Resolves* that these global plans shall provide the frameworks in which regional, subregional and national plans will be developed and implemented, thus ensuring consistency, harmonization and coordination of efforts aimed at improving international civil aviation safety, capacity and efficiency;

5. *Urges* Member States to develop sustainable solutions to fully exercise their safety oversight and air navigation responsibilities which can be achieved by sharing resources, utilizing internal and/or external resources, such as regional and subregional organizations and the expertise of other States;

6. *Urges* Member States to demonstrate the political will necessary for taking remedial actions to address safety and air navigation deficiencies, including those identified by Universal Safety Oversight Audit Programme (USOAP), through the GASP, the GANP and the ICAO regional planning process;

7. *Urges* Member States, the industry and financing institutions to provide the needed support for the coordinated implementation of the GASP and GANP, avoiding duplication of efforts;

8. *Calls upon* States and invites other stakeholders to cooperate in the development and implementation of regional, subregional and national plans based on the frameworks of the GASP and GANP;

9. *Instructs* the Secretary General to promote, make available and effectively communicate the GASP and the GANP; and

10. *Declares* that this resolution supersedes Resolution ~~A39-12~~ A40-1 on ICAO global planning for safety and air navigation.

APPENDIX A

Global Aviation Safety Plan (GASP)

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APPENDIX B

Global Air Navigation Plan (GANP)

Whereas the enhancement of the safety, capacity and efficiency of aviation operations is a key element of the ICAO Strategic Objectives;

Having adopted Resolution ~~A40-4~~ A41-xx, a consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation;

Recognizing the importance of GANP as an operational strategy and part of the basket of measures to achieve ICAO's global aspirational goals on CO_2 emissions; and

Recognizing that many States and regions are developing new air navigation plans for their own air navigation modernization;

The Assembly:

1. *Instructs* the Council to use the guidance in the Global Air Navigation Plan (GANP) to develop and prioritize the technical work programme of ICAO in the field of air navigation;

2. *Urges* the Council to provide States with a standardization roadmap, as announced in the GANP, as a basis for the work programme of ICAO;

3. *Calls upon* States, planning and implementation regional groups (PIRGs), and the aviation industry to utilize the guidance provided in the GANP for planning and implementation activities which establish priorities, targets and indicators consistent with globally-harmonized objectives, taking into account operational needs;

4. *Calls upon* States to take into consideration the GANP guidelines for the implementation of operational improvements as part of their national strategy to reduce the environmental impact, including CO_2 emissions, from international aviation;

5. *Calls upon* States, PIRGs, and the aviation industry to provide timely information to ICAO, and to each other, regarding the implementation status of the GANP, including the lessons learned from the implementation of its provisions;

6. *Invites* PIRGs to use ICAO standardized tools or adequate regional tools to monitor and, in collaboration with ICAO, analyse the implementation status of air navigation systems;

7. *Instructs* the Council to publish the results of the analysis on the regional performance dashboards ~~and in an annual global air navigation report~~ including, as a minimum, the key implementation priorities and accrued environmental benefits associated with the implementation of the operational improvements outlined in the ASBU framework;

8. *Urge*s States that are developing new air navigation plans, for their own air navigation modernization, to coordinate with ICAO and align their plans so as to ensure global compatibility and harmonization; and

9. *Instructs* the Council to continue developing the GANP, keeping it current with evolving technology and operational requirements.

— END —