



الهيئة العامة للطيران المدني
CIVIL AVIATION AUTHORITY
قطر QATAR



ICAO

MIDANPIRG/22 & RASG-MID/12

Doha, Qatar | May 4-8, 2025



Air Navigation and Aviation Safety Global Developments

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&

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Outline

01 Some Figures

02 Aviation and Environment

03 AN-Conf/14
Outcome

04 A42 overview

05 Global Plans

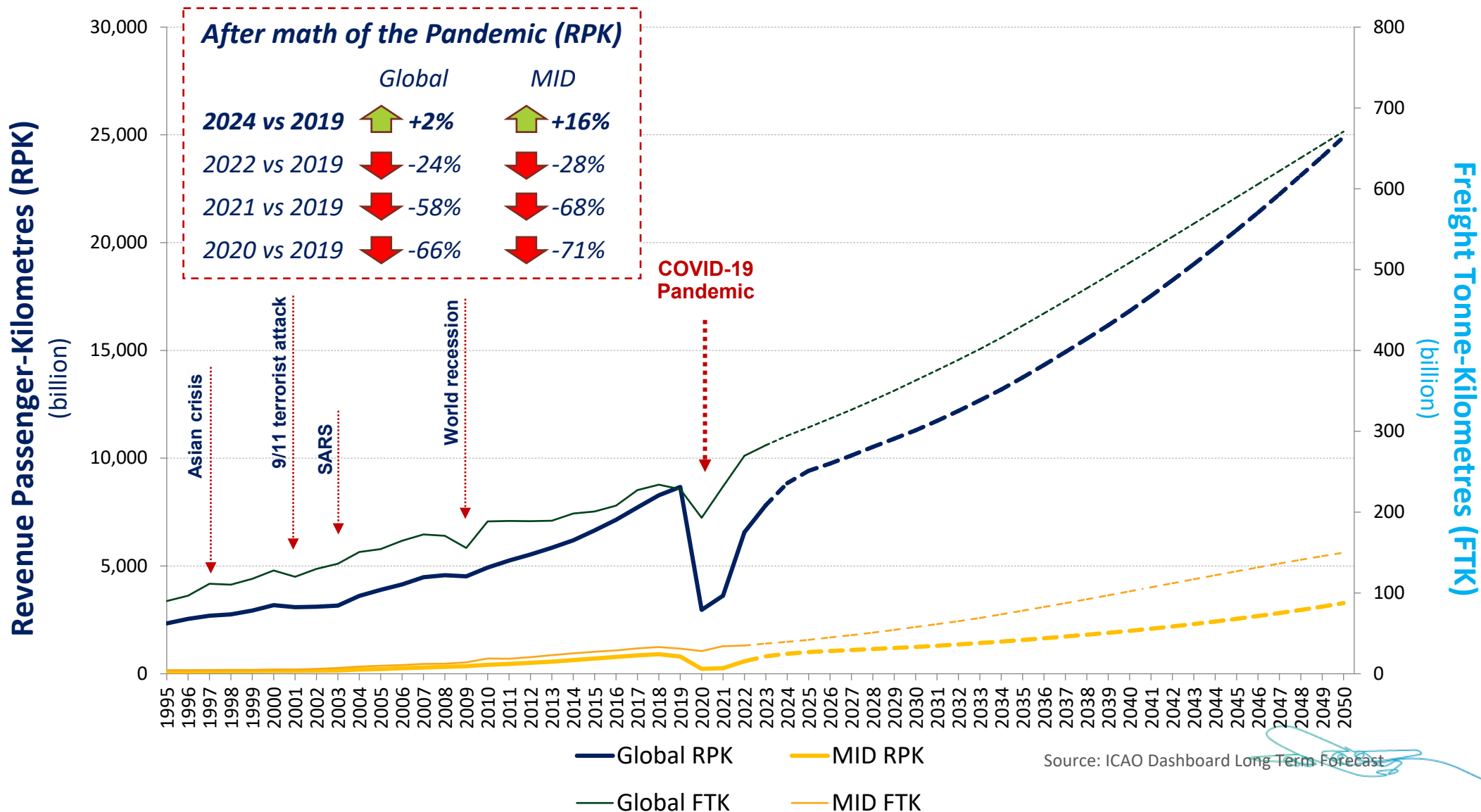
06 Safety Matters

07 USOAP-CMA

08 Action by the meeting

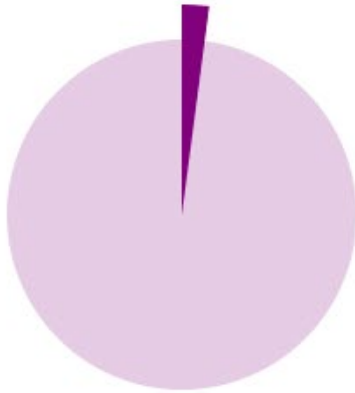


Global traffic: The Pandemic and Recovery



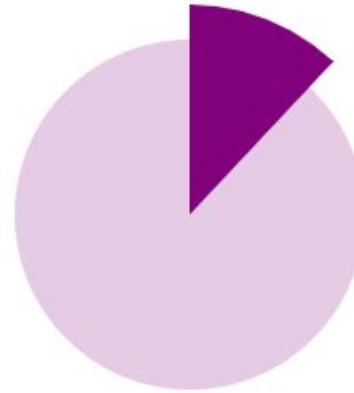
Aviation and Environment

(Source: Air Transport Action Group Facts and Figures)



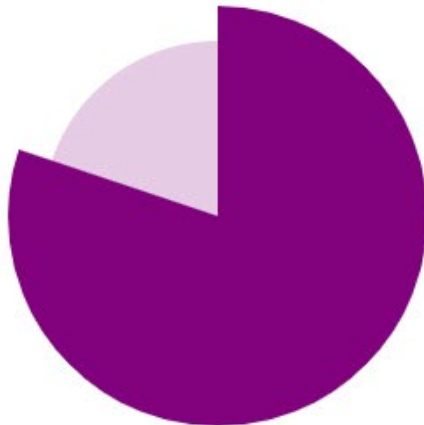
2.1%

The global aviation industry produces around 2.1% of all human-induced CO2 emissions. ⓘ



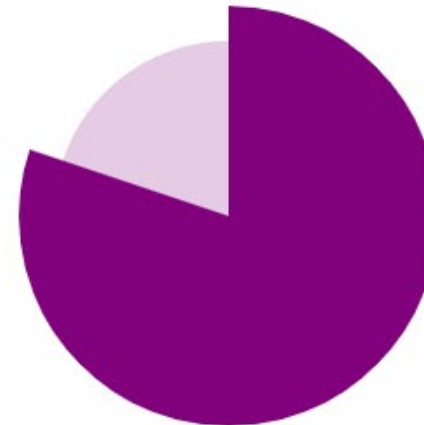
12%

Aviation is responsible for 12% of CO2 emissions from all transport sources, compared to 74% from road transport.



80%

Jet aircraft in service today are well over 80% more fuel efficient per seat kilometre than the first jets in the 1950s. ⓘ



80%

Around 80% of aviation CO2 emissions are emitted from flights of over 1,500 kilometres, for which there is no practical alternative mode of transport. ⓘ

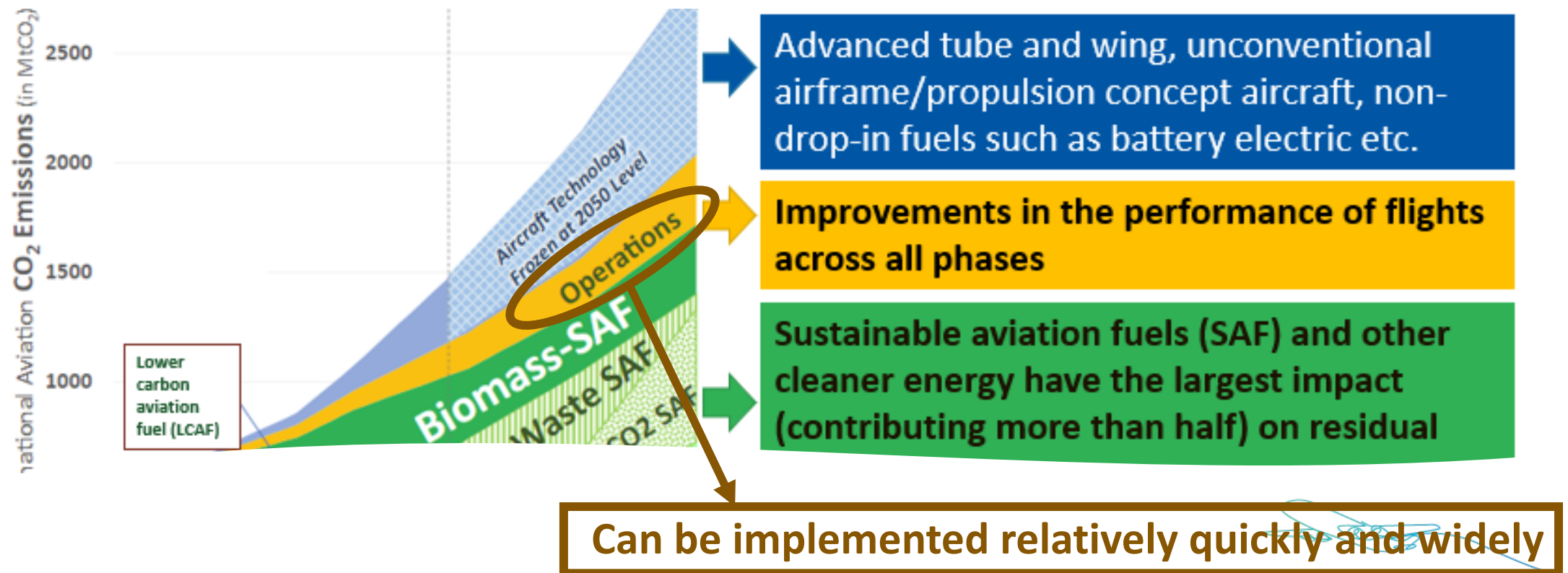


Assembly Resolution A41-21 Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change



LTAG - Technology, Operations, and Fuel

“When visualizing the ICAO basket of measures to reduce CO₂ emissions, **Air Traffic Management (ATM) and operations are often overlooked** as one of the main measures to support the decarbonization process. However, despite being depicted as a small wedge, **ATM and operations offer the highest potential** for reducing CO₂ and related **emissions in the short to medium term.**” (ICAO 2022 Environmental Report)

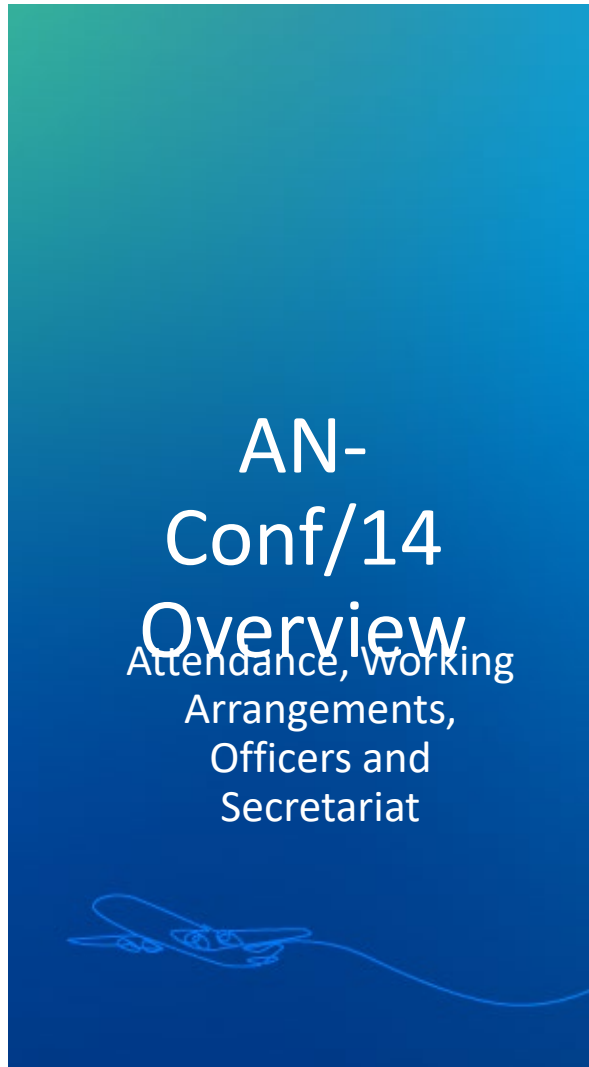


ICAO Decision-Making Events



02 AN- Conf/14





- Held in Montréal, 26 August - 6 September 2024
- 871 representatives from
 - 110 Member States and
 - 28 International Organizations
- Four agenda items under one Committee
- 205 papers were submitted to AN-Conf/14
- 22 recommendations were approved
 - 104 actions >> 45 to States & 59 to ICAO
 - Council & ANC to review >> decisions still pending

Objectives

- **Reach a global consensus on performance improvement initiatives** that will best allow ICAO, Member States and industry to address, in the context of constrained resources, aviation's global environmental challenges and the rapid evolution in aviation operations and technologies.
- **Call for an intentional refocusing of effort** so priority can be given to existing or new technical activities.



— Approved Agenda and Outcomes

Agenda Item 1

ICAO 2023-2025 Business Plan
and long-term strategic
planning

Agenda Item 2

Timely and safe use of new
technologies

Agenda Item 3

Air navigation system
performance improvement

Agenda Item 4

Hyper-connectivity of air
navigation system

- *Informed the aviation community* of the work that is already prioritized and underway in the ICAO 2023-2025 Business Plan
- *Held detailed technical discussions* on new initiatives, leading to agreement on a set of high-level recommendations in the field of air navigation and safety
- *Obtained timely direction* for preparation for the 42nd Session of the ICAO Assembly in 2025



— New Approach for AN-Conf/14


To allow enough time for discussion on interrelated subjects of world-wide scope falling within several air navigation fields



- Single committee
- Limited agenda items
- Focusing on the subjects not yet addressed by:
 - ICAO expert groups
 - Existing work programme
 - AN-Conf/HLSC/HLCC Recommendations
 - Assembly resolutions and decisions



— Guiding Principles (SL 23/12 and 24/12)

- 
- Items should be precisely defined and be included **only if they cannot be resolved or progressed by other means**, such as via ICAO expert groups or through planning and implementation regional groups (PIRGs).
 - Items related to the existing work programme of ICAO may be included **if they identify opportunities to make significant changes** in direction, such as a reprioritization or a change in the scale or the scope of work, or they have reached the necessary maturity for soliciting global direction.
 - Items that have limited applicability, which relate to new complex procedures or address the provision of new equipment, will only be considered **if they have matured to the extent that the necessity for worldwide agreement is apparent**.
 - Items addressing inconsistencies in ICAO documents will only be considered **if there are substantive implications**.
 - Exchange-of-views items should be included **only in those circumstances when a broad discussion is needed on the applicability to civil aviation of new concepts or techniques**.



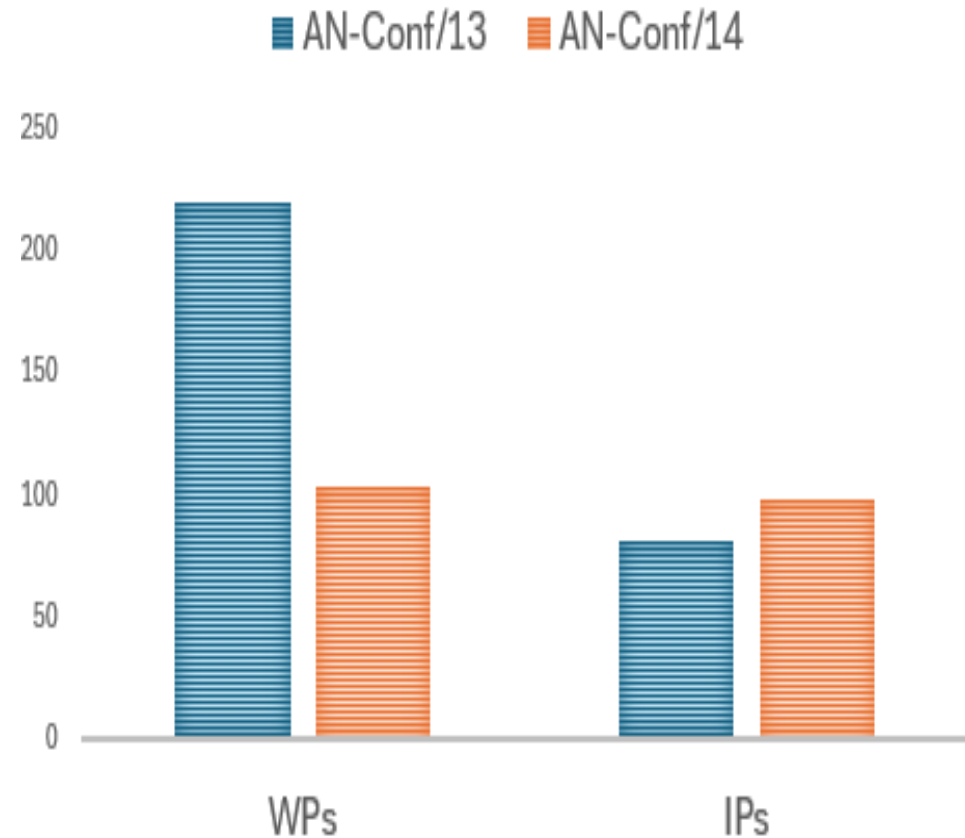
— Information Session

- Why:
 - To provide additional information on subjects tabled for discussion
 - To address requests from Member States and international organizations
- How:
 - Secretariat PPT (English-only)
 - Followed by Questions and Answers



— Conference Papers

- A total of 205 papers
 - 104 working papers
 - 98 information papers
 - 3 working papers were withdrawn
- 31 working papers
 - originally submitted as working papers converted to information papers
 - acknowledged in the Conference report
 - would be forwarded to the appropriate expert group(s)



AN-Conf/14

22

Recommendations



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

Recommendation 1.1/2 – Resilience of the air navigation system

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

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

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

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

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

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

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



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

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

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

Recommendation 3.1/4 – Free route airspace

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

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

Recommendation 3.1/7 – Higher airspace operations



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

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

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

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

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

Recommendation 4.2/1 – Aviation cybersecurity



The following are Actions specifically assigned to PIRGs or RASGs

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

that ICAO:

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

Recommendation 1.1/2 – *Resilience of the air navigation system*

that ICAO:

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

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

that States:

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

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

that States:

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

Recommendation 3.1/1– *Optimized implementation of longitudinal separation minima*

that States:

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

that ICAO:

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

The following are Actions specifically assigned to PIRGs or RASGs (Cont'd)

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

that States:

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

e) support and contribute to the work of their respective planning and implementation regional group and their sub-groups to develop a regional plan to transition to flight and flow – information for a collaborative environment services on the basis of the 2034 global cessation of the ICAO 2012 flight plan;

that ICAO:

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

The following are Actions specifically assigned to PIRGs or RASGs (Cont'd)

Recommendation 4.2/1 – Aviation cybersecurity

that States:

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



Post AN-Conf/14

- Report published
- Preparation of business plan and the regular budget proposal(s) for 2026-2027-2028, taking into account the Conference results and their prioritization, subject to Council decision on the recommendations
- Preparation of proposals for amendment to the contents of the 5th Edition of the GASP and 8th edition of the GANP.
- Promote the results of the Conference through various event opportunities
- Report the Conference outcome to the 42nd Assembly

Implementation of AN-Conf/14 Recommendations

Upcoming ICAO Provisions



Technical Area	SARPs and PANS	Description	Expected Applicability Date
FF-ICE	Annex 1, 2, 6.1, 6.2, 6.3, 10.2, 11, PANS-AIM, PANS-ATM, PANS-OPS Vol III, PANS-ABC	Initial implementation of the flight and flow information for a collaborative environment (FF-ICE) services	28 November 2024
SWIM	Annex 3, 10.2, 10.3, 15, PANS-AIM, PANS-IM (New)	System-wide information management (SWIM) and information security.	28 November 2024
SAR	Annex 11, 12	Implementation of the Global Aeronautical Distress and Safety System (GADSS) concept. Drift measurement, responsiveness of search and rescue (SAR) points of contact, methods for allowing other States to assist in SAR operations, safety of SAR personnel at accident sites, conduct of exercises, and procedures to be followed when intercepting a distress transmission.	28 November 2024
Helicopter PBN operations	PANS-AIM, PANS-OPS Vol II	Instrument flight procedures (IFP) for helicopter PBN operations	28 November 2024
hang gliding and paragliding activities	PANS-ABC	The NOTAM code for hang gliding and paragliding activities.	28 November 2024
Charting	Annex 4, PANS-AIM, PANS-OPS Vol I and II	Charting navigation specifications and accuracies, assurance for flight procedure design and maintenance of criteria	28 November 2024
Aircraft with folding wing tips	Annex 4, PANS-AIM	Aeronautical information related to areas where it is safe to operate aeroplanes with wing tips extended.	28 November 2024
FDAP	Annex 6.1	Updated provisions concerning flight data analysis programmes (FDAP)	28 November 2024
Aerodrome	PANS-Aerodrome	Amendments related to pavement rating	28 November 2024
Aerodrome	Annex 14.1,	aerodrome design, visual aids and apron management service	27 November 2025
MET	Annex 3, 6.1, 6.2, 6.3, 10.2, 11, PANS-MET (New)	Restructured Annex 3, space weather information services, quantitative volcanic ash information and the international airways volcano watch (IAVW), the ICAO meteorological information exchange model (IWXXM), the world area forecast system (WAFS), and improved definition of meteorological authority and introduction of a new definition of meteorological service provider	27 November 2025

Technical Area	SARPs and PANS	Description	Expected Applicability Date
Navigation Systems	Annex 10.1	Advanced receiver autonomous integrity monitoring (ARAIM), global positioning system (GPS), Galileo system, the satellite-based augmentation system (SBAS), the ground-based augmentation system (GBAS), distance-measuring equipment (DME) and frequency assignment planning for instrument landing system (ILS), VHF omnidirectional radio range (VOR), DME and GBAS	27 November 2025
COM	Annex 10.2	Aeronautical telecommunication network (ATN)/Internet Protocol Suite (IPS) requirements regarding mobility across multiple media, naming and addressing, IPS security, quality of service (QoS), system management and overall transitional aspects	27 November 2025
Radio Frequency	Annex 10.5	Wireless avionic intra-communications (WAIC), as well as frequency utilization for instrument landing system (ILS), VHF omnidirectional radio range (VOR), distance measuring equipment (DME) and ground-based augmentation system (GBAS)	27 November 2025
AIG	Annex 13	Investigations involving unmanned aircraft (UA); the release of investigative information; Global Aeronautical Distress and Safety System (GADSS) data and information; the publication of Final Reports; and the consultation period of Final Reports	26 November 2026
Data Link	Annex 2, Annex 10, Volume II, Annex 11 and PANS-ATM	Update relevant provisions supporting the air-ground data link operations to ensure they remain current and consistent with the improved guidance contained in the GOLD Manual (Doc 10037)	26 November 2026
Surveillance	Annex 10.4	Performance of surveillance systems in light of operational experience and emerging technologies	26 November 2026
RPAS	Annex 1, 2, 6.4, 8	Introduction of provisions for international RPAS operations in controlled airspace and at aerodromes. New Annex 6 Part IV on International Operations Remotely Piloted Aircraft Systems	26 November 2026
Aerodrome	Annex 14.2	Certification and an SMS for heliports	26 November 2026
Aerodrome	Annex 14.1, 14.2, 6.1, 6.2, 6.3, 9, PANS-AERO, PANS-AIM	Related ground handling	25 November 2027
MET	Annex 3, 15 and PANS-MET	<ul style="list-style-type: none">• Volcanic activity report and quantitative volcanic ash concentration information• Exchange of meteorological information in IWXXM and the introduction of SWIM service• Introduction of next-generation World Area Forecast System information• RPAS and via ADS-B-3 aerodrome observation/forecast information services and air reports• Space weather information service• Requirements for a regional space weather centre	25 November 2027
Dangerous Goods	Annex 18	Clarification of States’ responsibilities with respect to the safe transport of dangerous goods, including dangerous goods risks introduced by entities in the cargo supply chain.	23 November 2028

Technical Area	SARPs and PANS	Description	Expected Applicability Date
IFP	Annex 11, PANS-OPS Vol. I, II, PANS-AIM	Optimized SBAS instrument Criteria, path terminators, merging of ILS and GLS criteria and maintenance of existing criteria.	23 November 2028
FLTOPS	Annex 1, 2, 6.1, 6.2, 6.3, 6.4, 7, 8, 11, 15, 19, PANS-ATM	Operator emergency response plan, ramp inspections, electronic certificates and documents, additional/technical crewmember, runway overrun awareness and alerting system (ROAAS) and minor amendments	23 November 2028
RPASP-ATM	Annexes 2, 10.2, 10.4, 10.6 , 11, 12, PANS-ATM, PANS-OPS. I and III, PANS-AIM	detect and avoid (DAA), C2 Link and air traffic management (ATM), RLP, and C2CSP concepts.	23 November 2028
AIM	Annex 15 and PANS-AIM	<ul style="list-style-type: none"> Concerning trigger NOTAM validity period as well as other minor amendments 	23 November 2028
AIG	Annex 13, Annexes 6.1, 6.2, 6.3	<ul style="list-style-type: none"> Clarify the intent of the provisions of Annex 13 on para 5.11 for completing the Annex 13 investigation with a publicly available Final Report for accidents involving acts of unlawful interference Removing the condition associated with the word “available” from Annex 13, 5.4.3, to eliminate the risk of misinterpretation. Simplify and standardize ADREP reporting. Conflict of interest scenarios 	23 November 2028
Wake Turbulence	PANS-ATM	Wake turbulence separation minima for aircraft taking off from the intermediate part of the runway; optimized separation for dependent parallel approaches and pair-wise separation.	23 November 2028
ATFM	Annex 11, PANS-ATM	Requirements to support global implementation of air traffic flow management (ATFM) and capacity determination.	23 November 2028
RCF	Annex 2, 10.2, PANS-ATM	Updated procedures for Radion Communication Failure	23 November 2028
CTC	Annex 4, PANS-ATM, PANS-OPS Vol III	clarifies the responsibilities for the provision of terrain and obstacle clearance and temperature correction under various circumstances.	23 November 2028
ACAS III	Annex 10.4 (ACAS III)	Airborne collision avoidance system (ACAS) III	23 November 2028
SATCOM	Annex 10.III and 10.V, in coordination with FSMP	Update of the SATCOM SARPS to include more stringent performance requirements	23 November 2028
Aerodrome	Annex 14.1	Obstacle limitation surfaces	21 November 2030

05

A42 Overview



Main Role of the Assembly (Art. 49 of the Convention):

- Elect States to be represented on the Council
- Approve the Budget for the triennium
- Consider amendments to the Convention
- Review Council Annual Reports and other technical papers
- Review Financial Statements
- Take appropriate action on reports or any matters referred by the Council

Arrangements:

- 21 – 22 September 2025: ICAO Innovation Fair 2025 “Global Horizons: Inclusive Innovations for Aviation”
- In-person with live-streaming capabilities
- <https://www.icao.int/meetings/a42>

SL SA 42/1 - 24/108

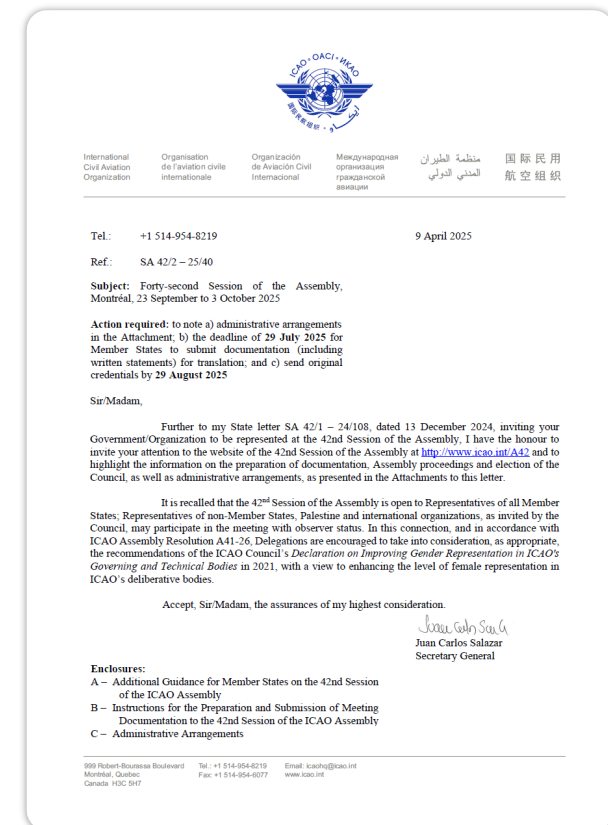
First SL issued on 13 December 2024

- Action required:
 - 1) by 14 August 2025, transmittal by Member States of any additional items to the Provisional Agenda; and
 - 2) by 29 August 2025, submission of original credentials.

SL SA 42/1 - 24/108

Second SL issued on 9 April 2025

- Action required:
 - 1) Note the administrative arrangements
 - 2) by 29 July 2025, Member States to submit documentation (including written statements) for translation; and
 - 3) by 29 August 2025, submission of original credentials.



— A42 Provisional agenda

39 items to be addressed by Plenary and five committees/Commissions:

- 1) Plenary
- 2) Executive Committee (EX)
- 3) **Technical Commission (TE)**
- 4) Economic Commission
- 5) Legal Commission
- 6) Administrative Commission



Item 23: Global Aviation Safety and Air Navigation Plans

Item 24: Aviation Safety and Air Navigation Priority Initiatives

Item 25: Other issues to be considered by the Technical Commission



THE EIGHTH EDITION OF THE GANP 2025





EIGHTH EDITION OF THE GANP

- **AN-Conf/14-WP/12**

- *Global Strategic Level*

- Recognition of A41 priority areas
- A new approach to integrate the new entrants focused on required air navigation services
- Common understanding to automation and artificial intelligence
- Reviewed performance ambitions in the environment KPA and the resilience focus area
- Update of the conceptual roadmap
- Mapping between the strategic and technical levels

- *Global Technical Level*

- Performance Framework
 - Environment KPA
 - Resilience focus area
 - Guidance on the application of a performance-based approach
- Initial update of the BBB and ASBU frameworks
 - Integrate new concepts (new entrants, use of AI/ML)

- Remaining work for the Assembly

- *Global technical level*

- Re-coordinate the environment KPA with CAEP
- Further develop the resilience focus area
- Implementation of the mapping between the strategic and the technical levels
- Run another campaign to update the BBB and ASBU frameworks
- Update the TBO tree
- Update the performance assessment of the ASBU framework
- Develop a benefit-driven approach

- National level

- Provide a template for the NANPs and associated guidance



2026-2028 edition of GASP & A42



2026-2028 GASP & A42

- Revised, 2026-2028 edition of GASP to be presented to A42
 - as part of A42-WP for endorsement
- Global Ops Safety Risks
 - 5 G-HRCs remain unchanged
 - new “ORCs” added: ARC, SCF-NP, TURB
 - + focus on contributing factors, such as GNSS RFI
- Global ORG Challenges
 - focus on resources to meet national & int’l obligations
 - AIG & AGA, mainly in CE-4 & CE-8
 - SSP implementation, with focus on SDCPS
- Majority of GASP goals remain unchanged
 - new targets added & some previous ones deleted
 - focused on Global Safety Issues to drive RASP & NASP activities



NASP Development & Implementation



NASP Globally & in MID Region

- MIDANPIRG/21 & RASG-MID/11 briefing
 - 79 States officially published NASPs so far
 - 4 States from MID Region
 - 27% of States in MID Region had NASP
- Today
 - 94 published NASPs in Library
 - 8 States from MID Region
 - 53% of States in MID Region have NASP
- States expected to revised NASP
 - In line with 2026-2028 GASP
 - and MID-RASP
- NASPs published at: www.icao.int/nasplibrary



Safety Management



Update on Annex 19 & Guidance

- **Annex 19 Amdt 2**
 - expected to be adopted by Council: June 2025
 - proposed applicability date: Q4 2026
 - SMP preparing to develop proposals for Amdt 3
- **5th Ed of SMM (Doc 9859) being finalized**
 - SSP & SMS, safety culture, SRM, SA
 - publication date (advance): Q4 2025
- **New Safety Intelligence Manual (Doc 10159)**
 - SDCPS, safety reporting, data analysis, governance, sharing & exchange
 - publication date (advance): Q2 2025



USOAP CMA & SSP



SSPIA Integration into USOAP Activities

- HLCC 2021 recommended integration of SSPIAs into traditional USOAP activities
 - Council approved the follow-up actions in 2022
- USOAP developed new set of SSP & SMS PQs
- Prior to official roll-out, 2 Beta-testing in 2025
- New PQs will be determined in SAT/ Non-SAT
 - similarly to all other USOAP PQs



SSPIA Integration into USOAP Activities

- SSP PQs covered under new stand-alone audit area (similar to LEG and ORG)
 - will encompass aspects that were previously covered in SSPIA's GEN and SD,
- SMS PQs integrated into different traditional technical areas
 - i.e. PEL, OPS, AIR, **AIG**, ANS and AGA
- SM PQs designed to allow flexibility for auditors
 - in accepting different ways States implement respective SARPs
- New SSP & SMS PQs will form part of the USOAP audits
 - applicable starting 2026
 - SSP portion of Integrated Mission Report to include EIs (overall & by SSP component)



Action by the Meeting:

The meeting is invited to:

- a) consider the update provided in the presentation during the deliberation under the relevant agenda items and take action as appropriate;
- b) agree on appropriate actions to implement the actions in the AN-Conf/14 Recommendations addressed to the PIRGs and RASGs, including the necessary development of transition and implementation regional plans for some of the topics and projects; and
- c) urge States to develop and revise (if applicable) their NASP and provide it for posting on NASP Library to MID Regional Office with copy to gasp@icao.int



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Thank You

