ICAO ENVIRONMENT

APAC Regional Office

AIR NAVIGATION DRIVING SUSTAINABILITY

Thirty-Sixth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/36)

Bangkok, Thailand, 24 to 26 November 2025

International Aviation Goals and Achievements

2010 — Carbon neutral growth from 2020

2% annual fuel efficiency improvement

2016 — Establishment of CORSIA

2018 — First global CO_2 emissions standard for aircraft

2022 — Long-term Global Aspirational Goal (LTAG): net-zero carbon emissions by 2050

2023 — CAAF/3

Global aspirational Vision: reduce CO_2 emissions by 5% by 2030 using aviation cleaner energies.

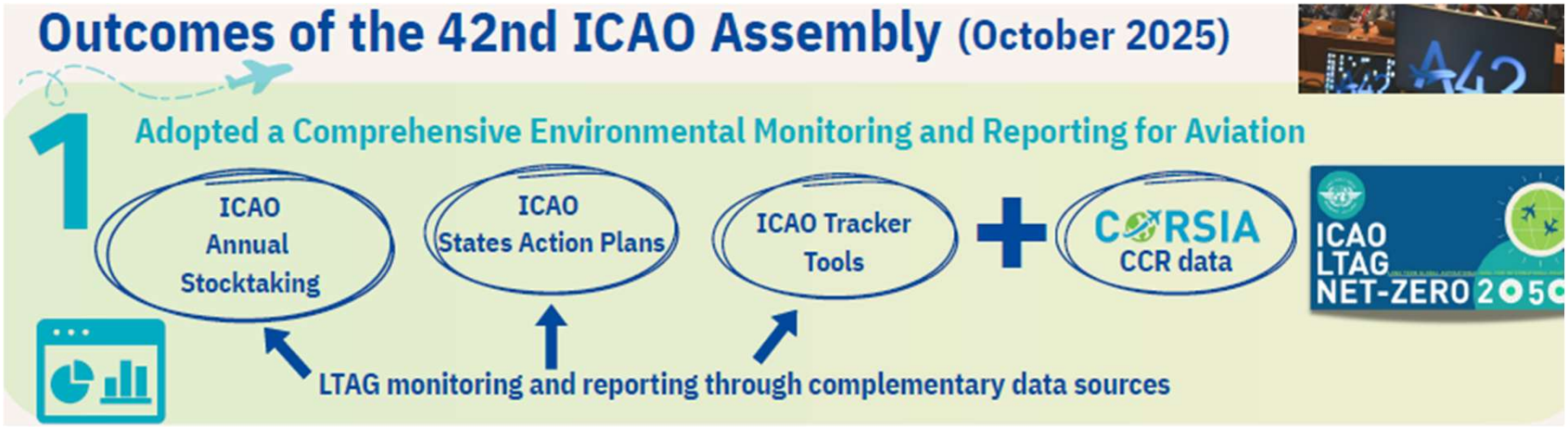
2024 — ICAO Implementation Roadmap

LTAG REPORT (2022)

The most ambitious scenario estimates total of **87% CO_2 reduction in 2050** from aviation "in-sector" measures.

- **-55%** from **Fuels**
- **-21%** from **Technology**
- **-11%** from **Operations**

ICAO's Environmental Protection webpage


Outcomes of the 42nd ICAO Assembly (October 2025)
A42
1
Adopted a Comprehensive Environmental Monitoring and Reporting for Aviation
ICAO Annual Stocktaking
ICAO States Action Plans
ICAO Tracker Tools
CORSIA CCR data
ICAO LTAG NET-ZERO 2050
LTAG monitoring and reporting through complementary data sources

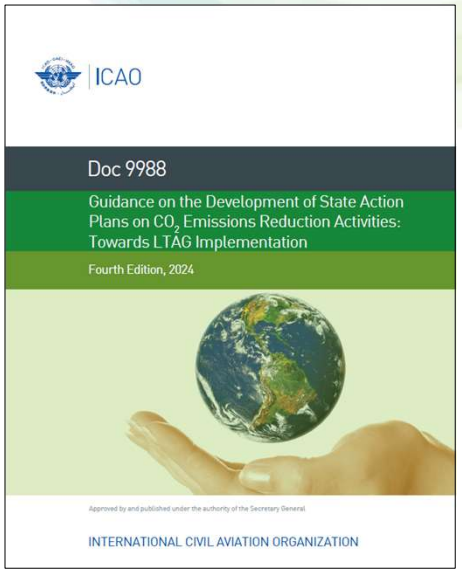
State Action Plan Initiative

- The State Action Plan is a voluntary planning and reporting initiative whereby States can communicate information on their activities to address CO_2 emissions from international civil aviation.

- A living document that defines a State's actions to reduce CO_2 emissions from international civil aviation.

- States
  - Submit an action plan with quantified information that identifies the measures to address environmental challenges and reduce CO_2 emissions.
  - Involves planning and coordination with stakeholders to identify policies and actions and provide a clear communication route to ICAO.

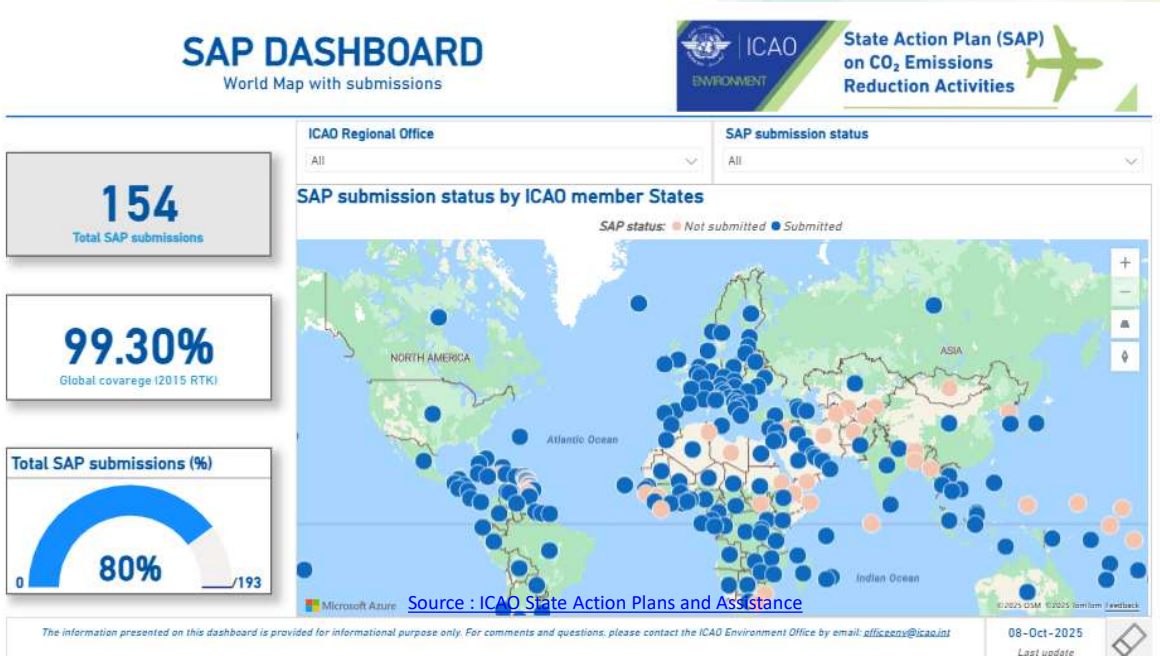
- ICAO
  - Assess future progress towards the achievement of ICAO global aspirational goals.



Source : ICAO State Action Plans and Assistance

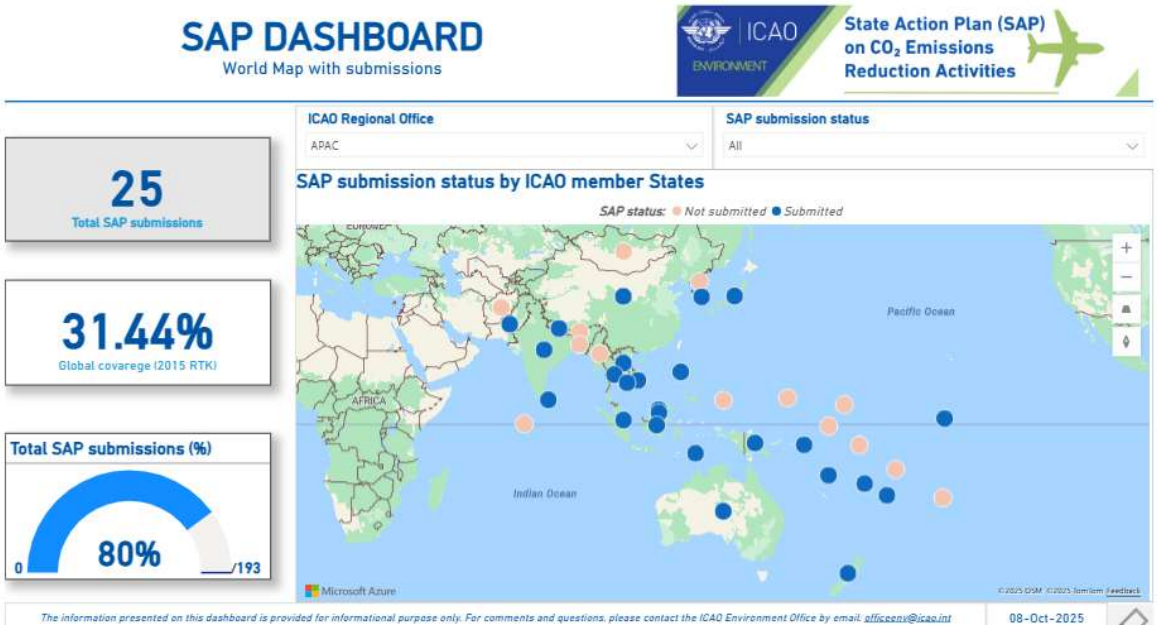
SAP submission by Member States globally

154 States (99.30 % of global RTK) have voluntarily submitted their State Action Plan



Source : ICAO State Action Plans and Assistance

SAP submission by Member States in the APAC Region



Source : ICAO State Action Plans and Assistance

25 States (31.44 % of global RTK) have voluntarily submitted their State Action Plan in APAC Region

25 of 39 APAC States (64%) submitted their initial SAPs, while 14 States (36%) had not.

SAP submission since APANPIRG/35

States	Initial submission date	Latest update date
Australia	Jun-12	Oct-22
Brunei Darussalam	Jan-24	
Cambodia	May-23	
China	Oct-12	Sep-25
Fiji	Aug-15	Dec-24
India	Sep-15	Jun-21 / Nov-25
Indonesia	Jun-12	Dec-21
Japan	April-22	Mar-25
Kiribati	Nov-23	Sep-25
Lao People's Dem. Rep.	May-23	
Malaysia	Apr-22	Feb-25
Nepal	Jun-13	

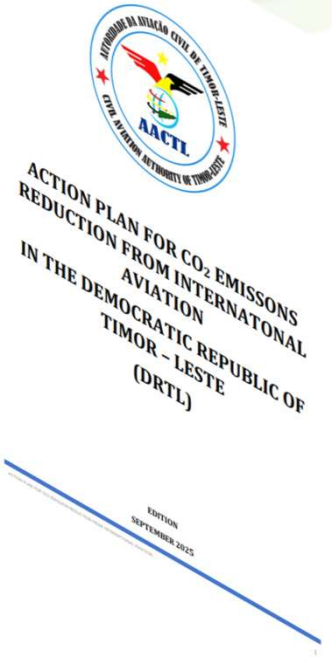
States	Initial submission date	Latest update date
New Zealand	Sep-16	
Pakistan	Sept-16	Sep-25
Papua New Guinea	Oct-23	Sep-25
Philippines	Jan-18	Jun-22
Republic of Korea	Jul-12	Feb-25
Singapore	Oct-12	Feb-24
Solomon Islands	Nov-23	Sep-25
Sri Lanka	Sep-12	Sep-25
Thailand	Sep-13	Nov-21
Timor-Leste	Sep-25	
Tonga	Feb-24	
Vanuatu	Dec-22	Dec-23
Vietnam	Mar-17	Feb-22

Source : ICAO State Action Plans and Assistance

SAP submission supported by State Action Plan Buddy Partnerships

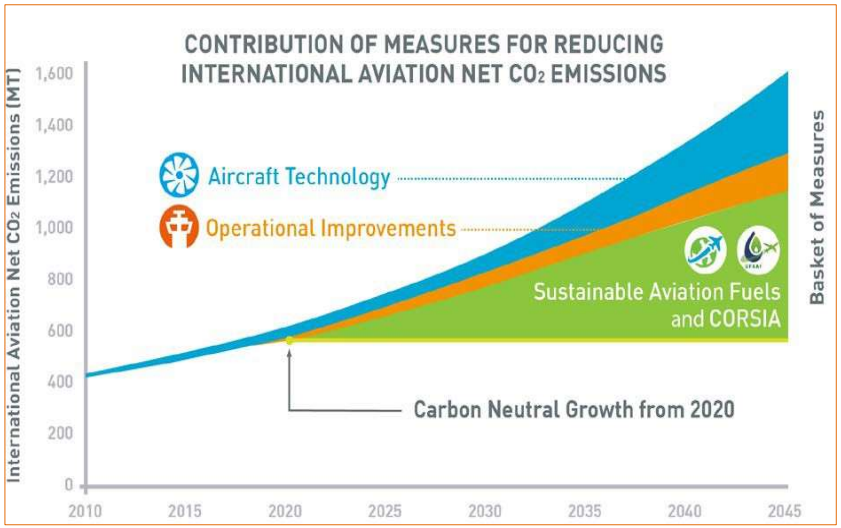
List of State Action Plan Buddy Programme Partnerships

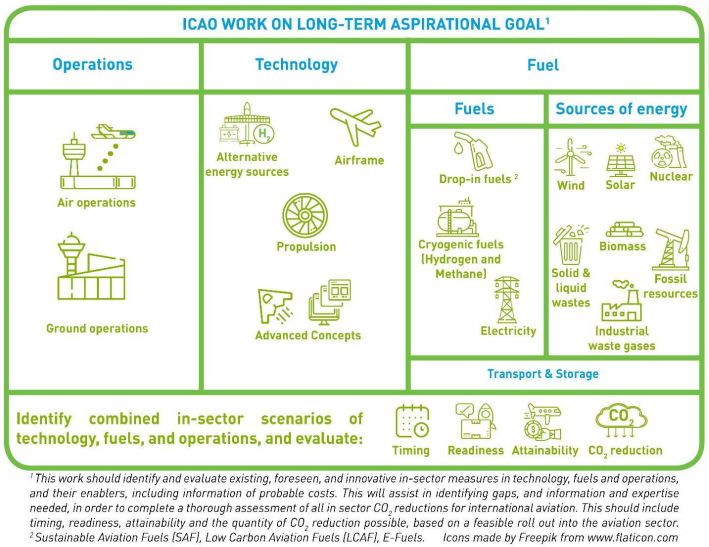
Partners		Status of Action Plan	
State providing support	**State receiving support**	**Under development**	**Submitted to ICAO**
Indonesia	Timor-Leste		X



Source : ICAO State Action Plans and Assistance

Operational Improvement measures for reducing International Aviation CO2 emission towards the LTAG initiative



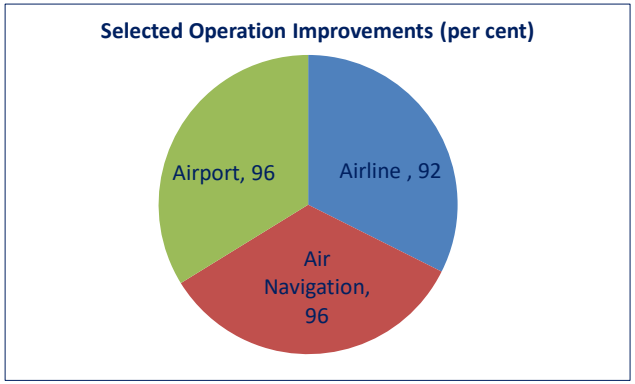


Source : ICAO State Action Plans and Assistance

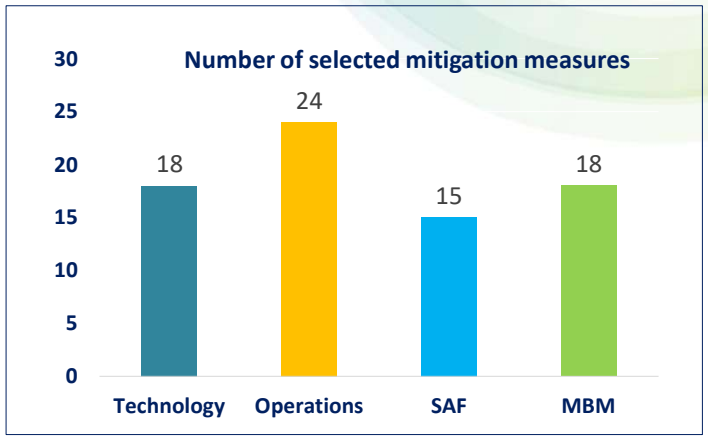
- **Select measures and quantify their expected results:** feasibility, emissions reduction potential, prioritization of measures, quantification of fuel & CO2 reduction results.
- **Air Operations** has become one of contributors to the operational improvement towards LTAG initiative

Operational Improvement and Air Navigation's Role in APAC Region

- **Air Navigation Benefits**: essential for enhancing flight performance and reducing CO2 emissions.
- **APAC Selection Rate :** 96% of APAC States with submitted SAPs have selected Air Navigation improvement to reduce CO2 emission



- **Fuel Saving Potential:** increase fuel saving up to 2.5 up to 4% or more, depending on the technology and implementation period.



Source : ICAO APAC RO and State Action Plans

- **Most Utilized Measure:** Operational improvements have emerged as the most widely utilized mitigation measure by APAC States (96%, 24 of the 25 submitted SAPs) which is implemented across all flight phases to achieve LTAG.

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Selected Air Navigation Improvements in the APAC Region

- Most selected Air Navigation improvement by States for different timeframes: Short term, Mid Term and Long Term.
- Innovation in Air Navigation may support coordinated decision-making in flight scheduling, traffic flow forecasting, collaborative release procedures, and surface movement guidance.
- Air Navigation Service Provider (ANSP) have significant contribution in implementing the Air Navigation's role for international aviation.

Approximate proportion of selected air navigation measures selected in APAC SAPs

Time Frame	Short Term (2024-2029)	Mid Term (2030-2040)	Long Term (2041-2050)
Key Improvement	ATFM (76%) PBN (56%) UPR (16%) FUA (16%)	ATFM (76%) PBN (56%) UPR (16%) FUA(16%)	ATFM (76%) PBN (56%) UPR (16%) FUA(16%)

Source : ICAO APAC RO and State Action Plans

Conclusions and Recommendations

Conclusions

- The goal of innovation in Air Navigation measure is to increase fuel saving and flight efficiency to inline with a collective long-term global aspirational goal (LTAG) by 2050.
- Air Navigation measures may support coordinated decision-making (e.g., in flow forecasting and collaborative release procedures), which significantly reduces flight delay recovery time, enhances airspace capacity, and unlocks further potential for energy conservation and CO2 emissions reduction.

Recommendations

- Encourage States in implementing the innovation in Air Navigation measure in the SAPs toward LTAG initiative.
- Enhancing Air Navigation infrastructure and technology that will be increasing fuel saving, flight efficiency, CO2 emission reduction across countries.
- Leveraging capacity building for States in supporting Air Navigation's role for international aviation.

Thank You

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