



| ICAO

ECONOMIC DEVELOPMENT

NO COUNTRY LEFT BEHIND



Fourth meeting of the Directors General of Civil Aviation – MID Region

Muscat, Oman

17 to 19 October 2017





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UNITING AVIATION

Environmental Protection



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UNITING AVIATION

Environmental Protection

Main areas of activity

Aircraft Noise

Aircraft Emissions: Local Air Quality

Aircraft Emissions: Greenhouse gases / Climate Change



Key Environmental Issues

dB

Decibels

Noise

Emissions

CO₂

Carbon dioxide

HC

Hydrocarbon

NO_x

Mono-nitrogen oxides

CO

Carbon monoxide





3 Pillars of ICAO Environmental Work

Approach to Quantification through:

- Data Collection and Compilation (RTK¹, Fuels² and Emissions Reduction)
- Forecasting
- Modelling

Identification of Mitigation Measures through:

- Aircraft Technology
- Operational Improvements
- Sustainable Alternative Fuels
- Market-based Measures

Approach to Implementation through:

- States' action plans and Assistance to States
- Global action to implement measures to reduce CO₂

1. ICAO Contracting States report traffic data through Form A

2. ICAO Fuel Consumption reporting Form M and modelled data is processed using ICORAS tool



- The 39th Session of the ICAO Assembly reached a historic environment agreement:
 - Acknowledged progress in all elements of the basket of measures (i.e. aircraft technology and Standards, operational improvements, sustainable alternative fuels, and global MBM)
 - Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
- 3 Assembly Resolutions adopted on environment:
 - Resolution A39-1: Consolidated Statement of continuing ICAO policies and practices related to environmental protection – General provisions, noise and local air quality
 - Resolution A39-2: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change
 - **Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme**
NEW !

ICAO and the United Nations Sustainable Development Goals (SDGs)

Read more at: <http://www.icao.int/about-icao/aviation-development/Pages/SDG.aspx>

ICAO STRATEGIC OBJECTIVES

SAFETY

CAP/EFF

SEC/FAL

ECON
DEV

ENV

Goal	Description	SAFETY	CAP/EFF	SEC/FAL	ECON DEV	ENV
Goal 1	End poverty in all its forms everywhere				●	
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture					
Goal 3	Ensure healthy lives and promote well-being for all at all ages	●		●	●	●
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	●	●	●	●	●
Goal 5	Achieve gender equality and empower all women and girls	●	●	●	●	●
Goal 6	Ensure availability and sustainable management of water and sanitation for all					
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all					●
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all			●	●	
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	●	●		●	●
Goal 10	Reduce inequality within and among countries	●	●	●	●	●
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable					
Goal 12	Ensure sustainable consumption and production patterns				●	●
Goal 13	Take urgent action to combat climate change and its impacts		●		●	●
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development					
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss			●		●
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels			●		
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	●	●	●	●	●



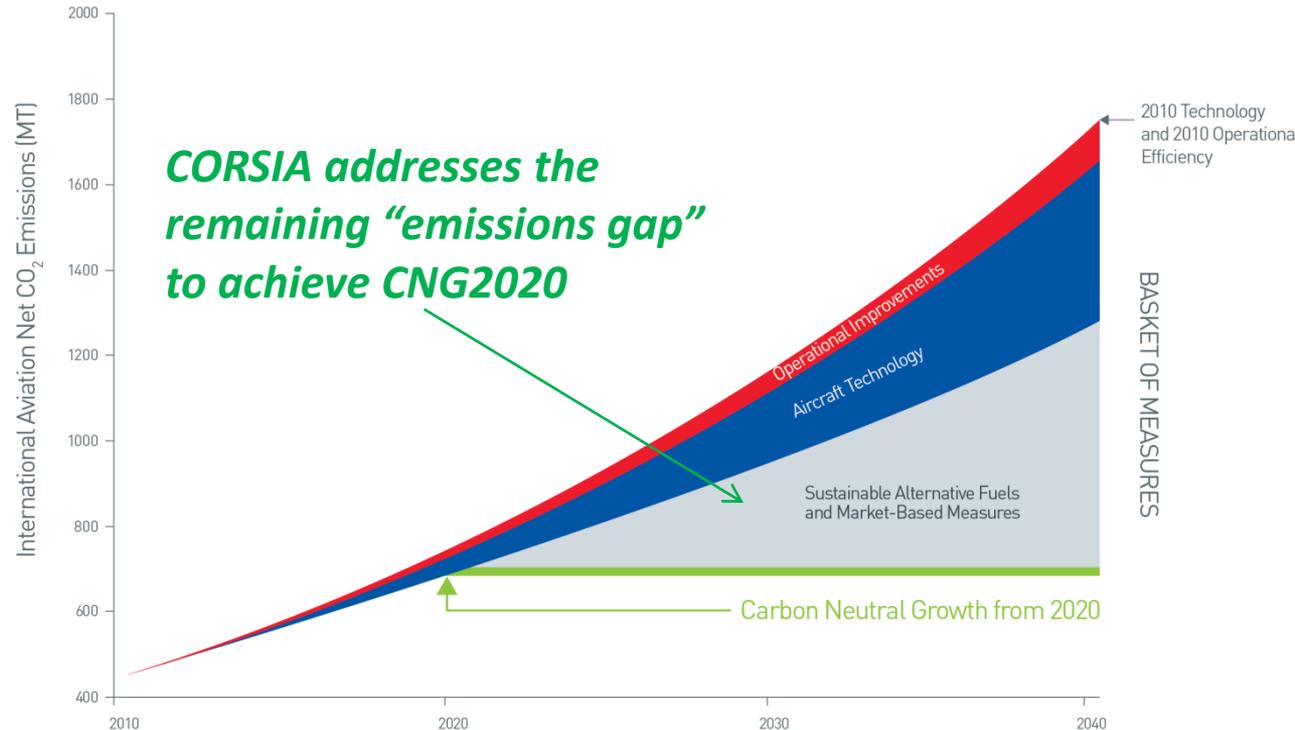
→ ICAO’s global aspirational goals for the international aviation sector

- Improve fuel efficiency by 2% per year
- Keeping its CO₂ emissions at 2020 level (carbon neutral growth from 2020)

→ Basket of Measures

- Aircraft Technology
- Operational Improvement
- Sustainable Alternative Fuel
- Global Market-based Measure

Contribution of Measures for Reducing International Aviation Net CO₂ Emissions





→ Aircraft Technology

- CO₂ emissions Standard and nvPM Standard (Council adoption in Mar 2017)

→ Operational Improvement

- ICAO Seminar on Green Airports (29 to 30 Nov 2017 in Montreal)

→ Sustainable Alternative Fuel

- ICAO Conference on Aviation and Alternative Fuels (CAAF2, 11 to 13 Oct 2017 in Mexico City)

→ Global Market-based Measure

- Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) regional seminars (Mar/April 2017 & 2018) and SARPs adoption (2018)



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STATES' ACTION PLAN INITIATIVE

- Update and implement voluntary State Action Plans to reduce aviation CO₂ emissions.
- As of September 2017, **104** States representing **>90%** of global RTK submitted action plans to ICAO.





Synergies between States' Action Plans and CORSIA

- State Action Plans provide a big picture
- Progress in all elements of a basket of mitigation measures should be reflected in State Action Plans (Resolution A39-3 paragraphs 6 and 7)
- State Action Plans containing a robust data collection, monitoring and reporting mechanism provide a good basis, from which the CORSIA MRV can be derived
- State Action Plans can reflect the results of CO₂ emissions offsetting under CORSIA by participating States
- Very important to have compatible tools for use under CORSIA and State Action Plans



- To date, **72 States**, representing **87.7%** of international aviation activity, intend to voluntarily participate in the CORSIA from its outset
- 3 States in the **Middle East Region** have voluntarily joined CORSIA, from its outset in 2021

NOTE: Updates to this information can be found on the CORSIA website: <http://www.icao.int/environmental-protection/Pages/market-based-measures.aspx>

ALBANIA	GREECE	PAPUA NEW GUINEA
ARMENIA	GUATEMALA	POLAND
AUSTRALIA	HUNGARY	PORTUGAL
AUSTRIA	ICELAND	QATAR
AZERBAIJAN	INDONESIA	REPUBLIC OF KOREA
BELGIUM	IRELAND	REPUBLIC OF MOLDOVA
BOSNIA AND HERZEGOVINA	ISRAEL	ROMANIA
BOTSWANA	ITALY	SAN MARINO
BULGARIA	JAMAICA	SAUDI ARABIA
BURKINA FASO	JAPAN	SERBIA
CANADA	KENYA	SINGAPORE
CHINA	LATVIA	SLOVAKIA
COSTA RICA	LITHUANIA	SLOVENIA
CROATIA	LUXEMBOURG	SPAIN
CYPRUS	MALAYSIA	SWEDEN
CZECH REPUBLIC	MALTA	SWITZERLAND
DENMARK	MARSHALL ISLANDS	THAILAND
EL SALVADOR	MEXICO	THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA
ESTONIA	MONACO	TURKEY
FINLAND	MONTENEGRO	UKRAINE
FRANCE	NETHERLANDS	UNITED ARAB EMIRATES
GABON	NEW ZEALAND	UNITED KINGDOM
GEORGIA	NIGERIA	UNITED STATES
GERMANY	NORWAY	ZAMBIA

Traffic rankings in 2015-16

International Scheduled Revenue Tonne-Kilometres (RTK)

Rank	State of AOC	RTK 2015	RTK share (%)	Cumulative (%)
1	China	70,319,264,613	12.4%	12.4%
2	United States	61,944,635,087	10.9%	23.3%
3	United Arab Emirates	52,018,798,574	9.2%	32.4%
4	United Kingdom	31,065,978,078	5.5%	37.9%
5	Germany	30,924,097,384	5.4%	43.3%
6	Republic Of Korea	21,802,605,943	3.8%	47.2%
7	Singapore	18,647,388,313	3.3%	50.5%
8	France	18,295,414,100	3.2%	53.7%
9	Qatar	17,359,871,880	3.1%	56.7%
10	Netherlands	15,732,743,524	2.8%	59.5%
11	Turkey	15,618,938,360	2.7%	62.3%
12	Japan	15,495,072,148	2.7%	65.0%
13	Ireland	13,238,242,781	2.3%	67.3%
14	Canada	13,040,382,256	2.3%	69.6%
15	Russian Federation	11,635,019,200	2.0%	71.7%
16	Australia	9,375,936,670	1.7%	73.3%
17	Thailand	9,263,914,735	1.6%	74.9%
18	Spain	9,145,732,692	1.6%	76.6%
19	Malaysia	8,983,623,373	1.6%	78.1%
20	India	6,994,194,840	1.2%	79.4%

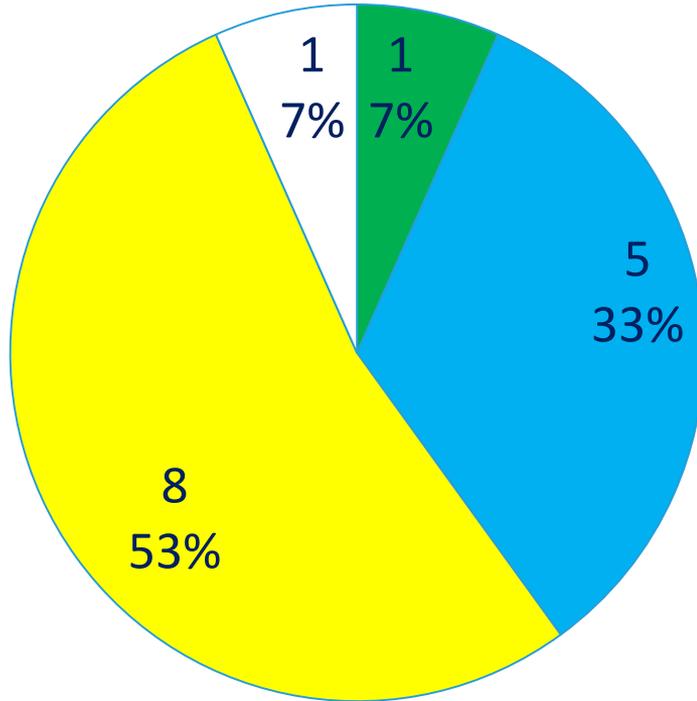
Rank	State of AOC	RTK 2016	RTK share (%)	Cumulative (%)
1	China	76,648,972,221	12.7%	12.7%
2	United States	62,335,143,245	10.3%	23.0%
3	United Arab Emirates	55,157,365,092	9.1%	32.1%
4	United Kingdom	33,583,344,058	5.6%	37.7%
5	Germany	31,833,586,740	5.3%	43.0%
6	Republic Of Korea	22,756,334,465	3.8%	46.7%
7	Qatar	21,672,038,650	3.6%	50.3%
8	Singapore	19,217,589,225	3.2%	53.5%
9	France	18,128,411,400	3.0%	56.5%
10	Turkey	17,180,661,359	2.8%	59.3%
11	Japan	16,990,015,370	2.8%	62.1%
12	Netherlands	15,793,797,175	2.6%	64.8%
13	Canada	14,756,948,312	2.4%	67.2%
14	Ireland	14,428,167,318	2.4%	69.6%
15	Russian Federation	12,201,634,090	2.0%	71.6%
16	Spain	9,864,004,663	1.6%	73.2%
17	Thailand	9,697,340,540	1.6%	74.8%
18	Australia	9,684,340,250	1.6%	76.4%
19	Malaysia	8,280,258,118	1.4%	77.8%
20	Scandinavia	8,188,829,017	1.4%	79.2%



Current data as of 23 August 2017

Middle East

15 States



- State with Aircraft Operators conducting international flights, that has MRV
- State with Aircraft Operators conducting international flights, that has a State Action Plan but no MRV
- State with Aircraft Operators conducting international flights, that has no State Action Plan and no MRV
- State without Aircraft Operators conducting international flights



- The **No Country Left Behind** (NCLB) campaign highlights ICAO's efforts to assist States in implementing ICAO Standards and Recommended Practices (SARPs).
- The main goal of this work is to help ensure that SARP implementation is better harmonized globally so that all States have access to the significant socio-economic benefits of safe and reliable air transport.
- The NCLB effort also promotes ICAO's efforts to resolve Significant Safety Concerns (SSCs) brought to light through ICAO's safety oversight audits as well as other safety, security and emissions-related objectives.



- **Aviation Security and Facilitation**

- Assist States in the identification of deficiencies in your aviation security system
- Assist States in addressing and solving those deficiencies
- Assist States in enhancing your aviation security and facilitation capabilities

- **Economic Development of Air Transport**

- Assist States in assessing and maximizing the contribution of air transport to your economic development
- Assist States in the analysis of your portfolio of air services agreements and in identifying new opportunities
- Assist States in your aviation forecasting and planning activities

- **Environmental Protection**

- Assist States in the preparation of your action plans to reduce CO2 emissions from aviation
- Assist States in the estimation of the environmental benefits of air navigation (ATM and operational) measures including ASBUs



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Shukran, Xie Xie, Thank You, Merci,
Spasiba, Gracias

Questions? Comments?

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