



Destination Green

ICAO Symposium on Aviation and Climate Change, "Destination Green", 14 – 16 May 2013

Aviation and Environment: Developments Since the Last Assembly

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ICAO - Chief, Environment

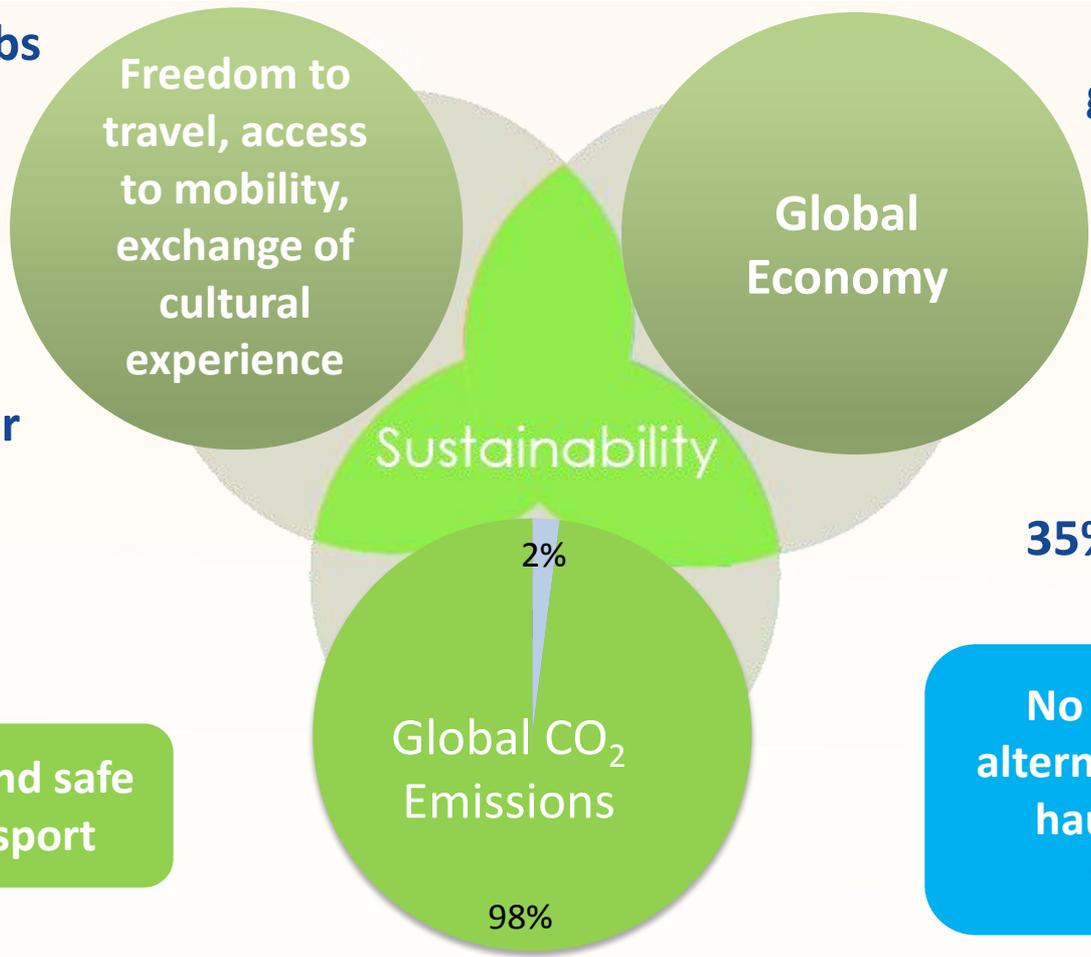


Aviation in context: contributions across Social, Economic and Environmental pillars of Sustainable Development

56.6 million jobs supported by aviation worldwide

2.9 billion passengers per year

Fast, reliable, and safe mode of transport



2.2 trillion USD global economic impact

Up to 3.5 % of global GDP supported

35% of world trade by value carried

No comparative alternatives for long-haul passenger transport

2% of Global human-made CO₂ emissions



Key Environmental Issues

dB

Noise

Emissions

CO₂

HC

NO_x

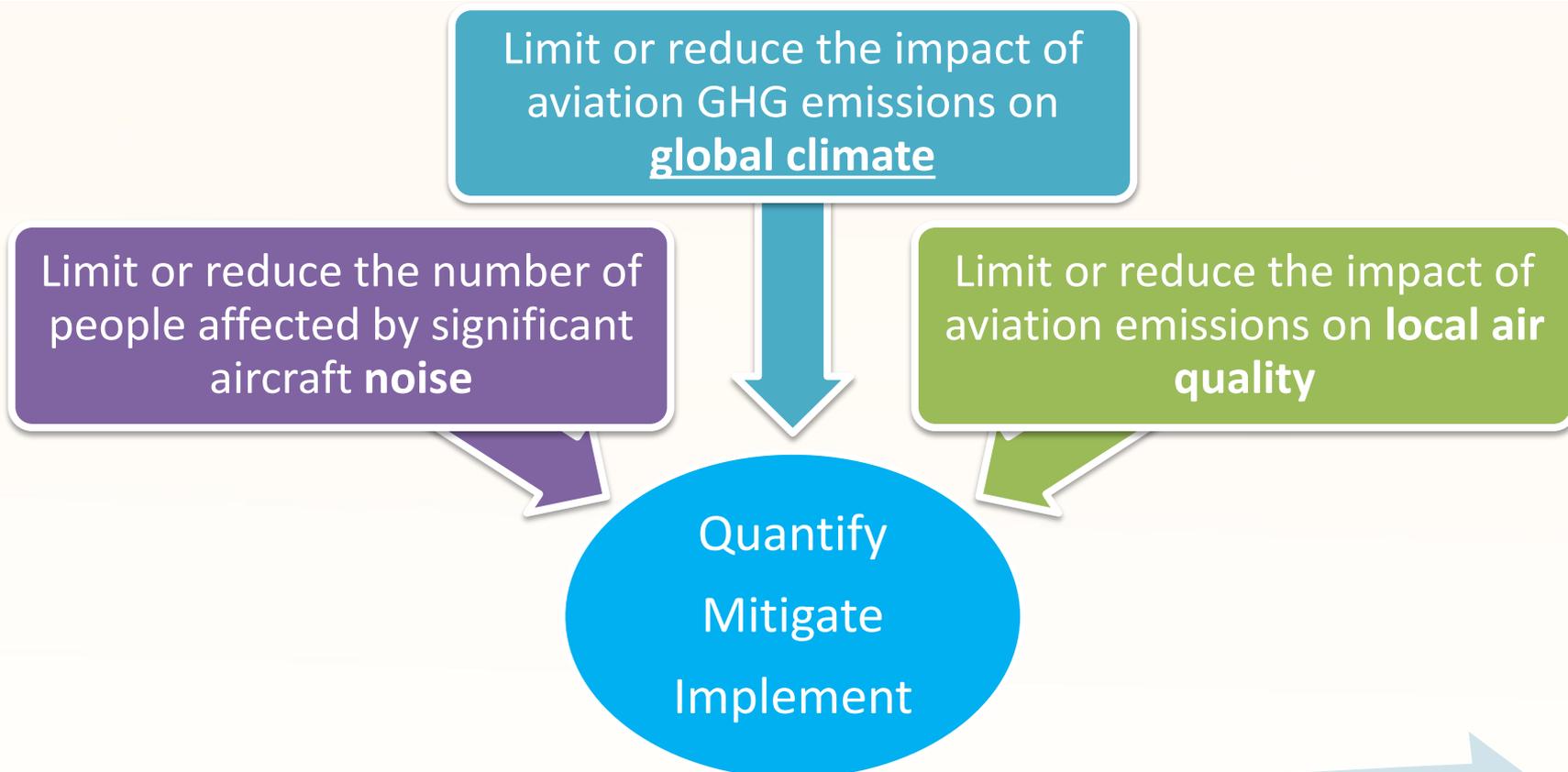
CO

PM





ICAO Environmental Goals



Minimize the adverse effect of global civil aviation on the environment



Quantification, Mitigation and Implementation



Approach to Quantification through:

- Data Collection and Compilation (RTK, Fuels and Emissions Reduction)
- Forecasting
- Modelling

Approach to Mitigation through:

- Technology and Standards
- Operational Measures
- Market-based Measures
- Alternative Fuels

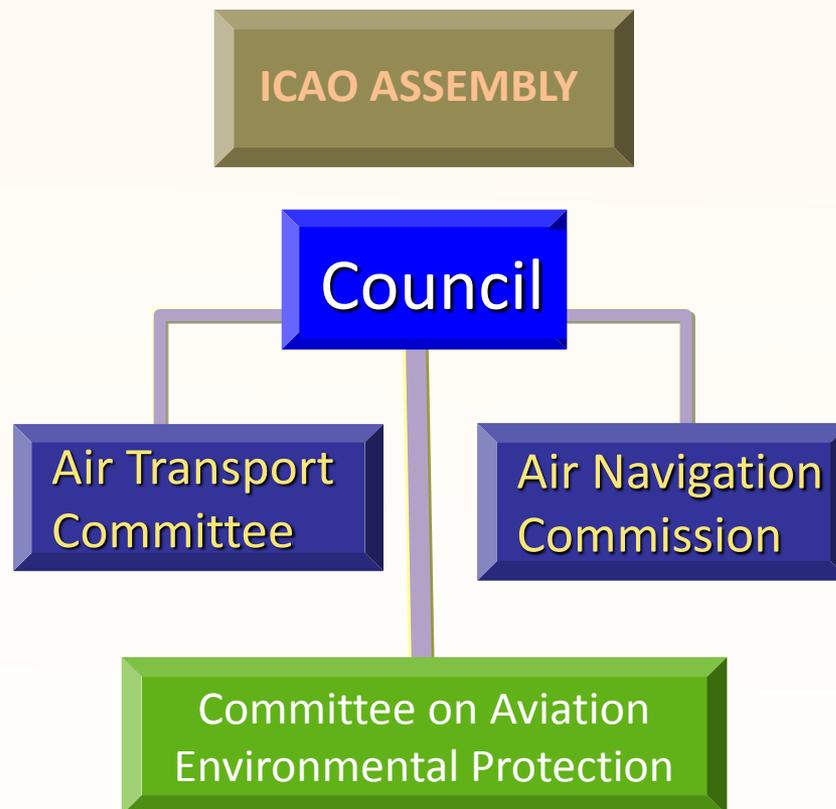
Approach to Implementation through:

- States' action plans and Assistance to States



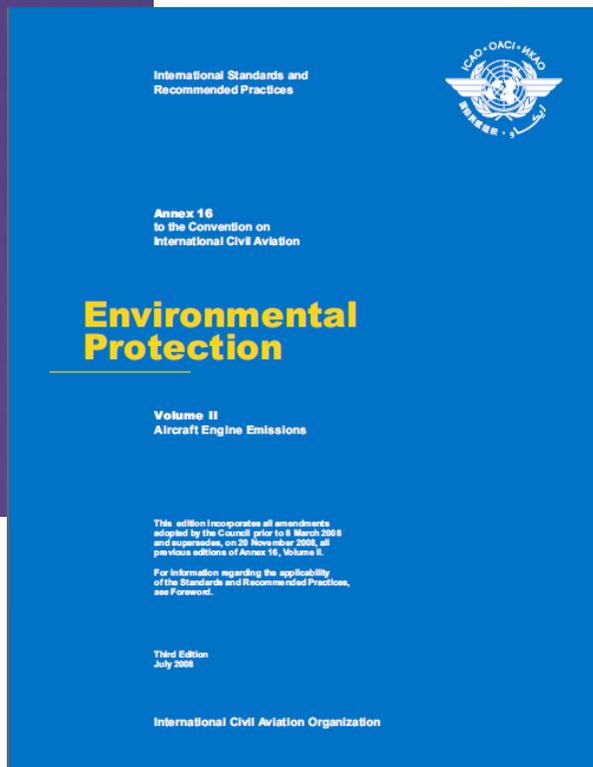
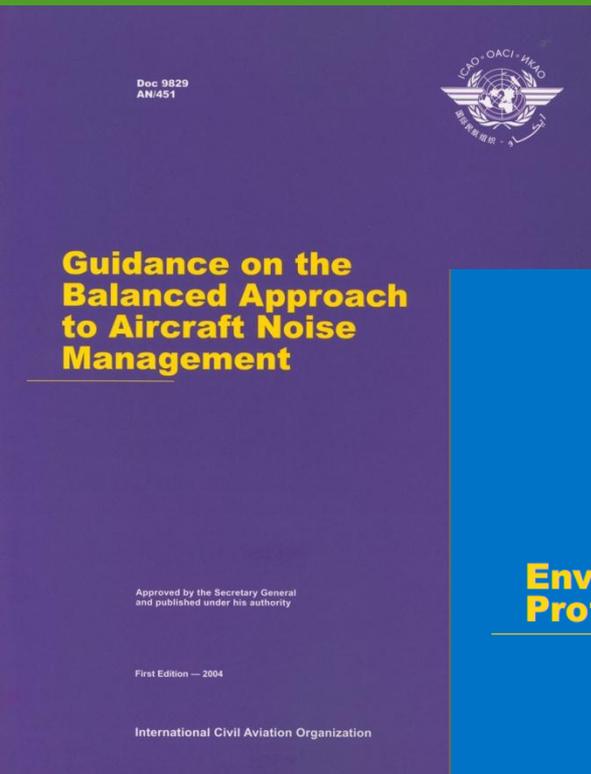
Committee on Aviation Environmental Protection - CAEP

- Established by the ICAO Council in 1983, superseding the Committee on Aircraft Noise (CAN) and the Committee on Aircraft Engine Emissions (CAEE).
- Assists the ICAO Council in formulating new policies and adopting new SARPS for aircraft noise and aircraft engine emissions.
- Undertakes specific studies related to control of noise and emissions.





ICAO SARPs and Guidance



ICAO SARPs

Annex 16 – Volume I Aircraft Noise & Volume II Aircraft Engine Emissions

ICAO GUIDANCE (examples)

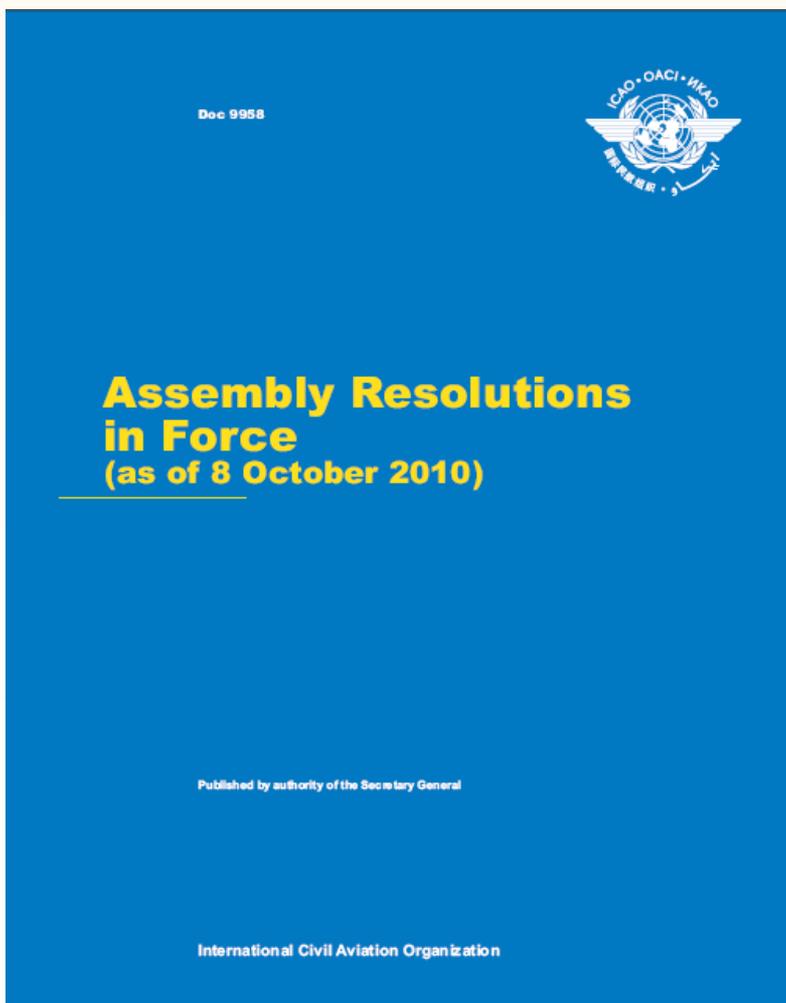
NOISE – *Guidance on the Balanced Approach to Aircraft Noise Management* (Doc 9829)

EMISSIONS – *Guidance on the Use of Emissions Trading for Aviation* (Doc 9885)



ICAO Policy on Climate Change

Destination Green 



A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection – General provisions, noise and local air quality

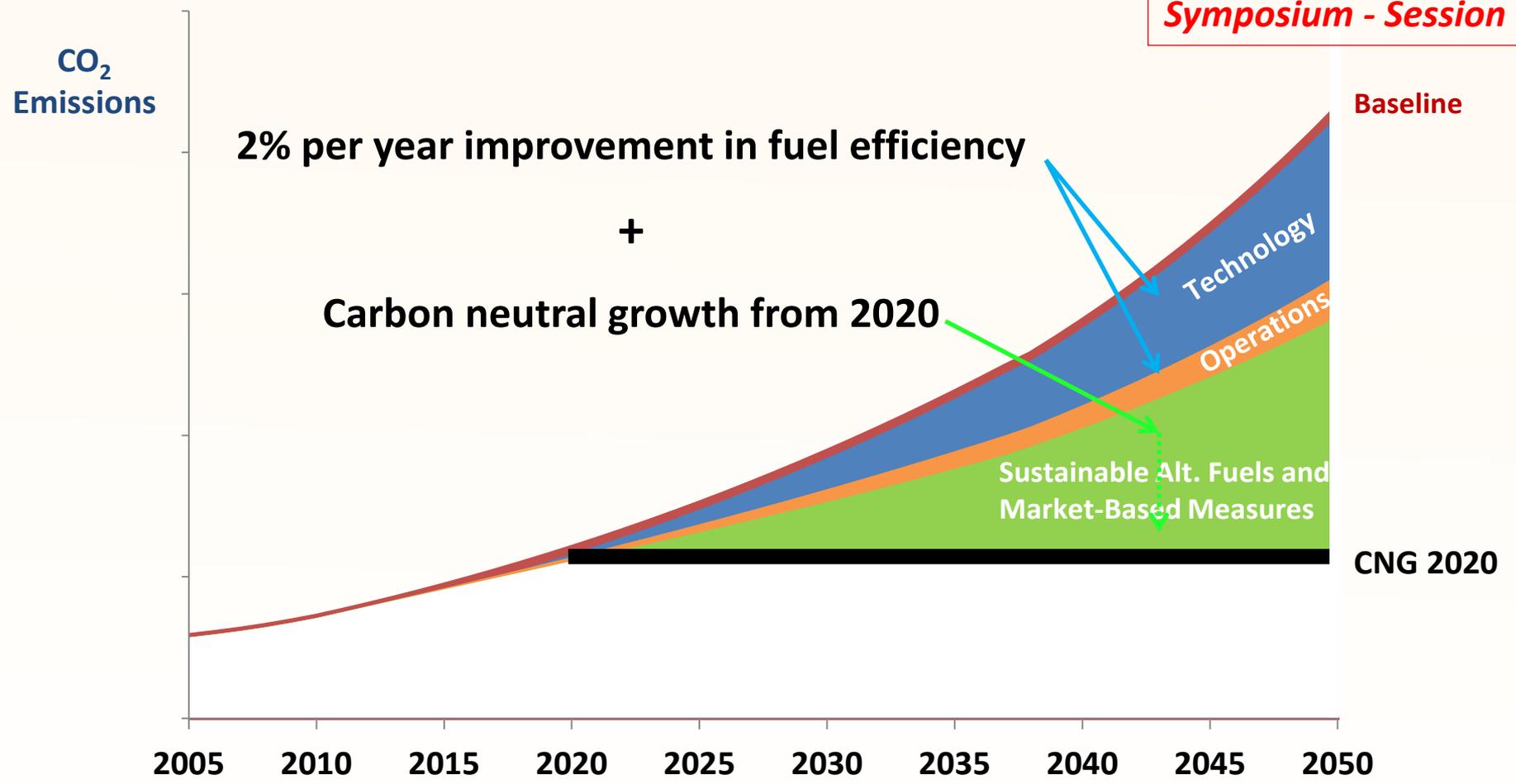
A37-19: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change

(adopted by 37th ICAO Assembly in October 2010)



Global Aspirational Goals

Symposium - Session 1





Basket of Measures



- Aircraft related technology development **Symposium - Sessions 2 to 5**
- Improved air traffic management and infrastructure use
(i.e. more efficient ATM planning, more efficient use and planning of airport capacities)
- More efficient operations (i.e. best practices in operations, optimised aircraft maintenance)
- Alternative fuels
- Economic/ market-based measures
- Regulatory measures
- Other



Technology and Standards: Development of a CO₂ Standard



- The aircraft CO₂ Standard will result in a new Annex 16 Vol. III

Symposium - Session 3

- Two phases in the approach:

- Phase 1 has been completed

- Development of CO₂ Certification Requirement, including a CO₂ metric system and procedures.

- Phase 2 is underway

- CO₂ Standard setting process (stringency levels, technology responses, cost effectiveness assessments and interdependencies).

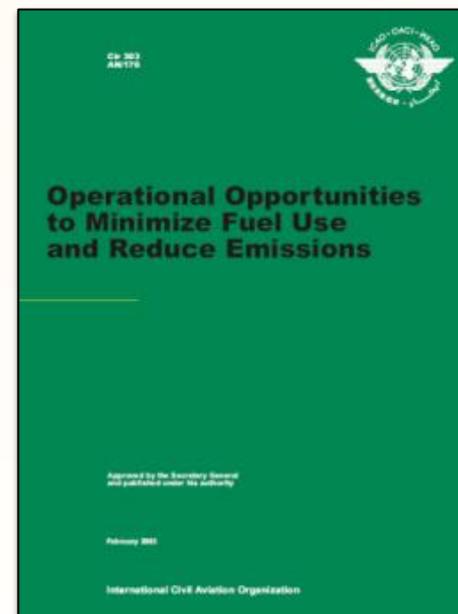
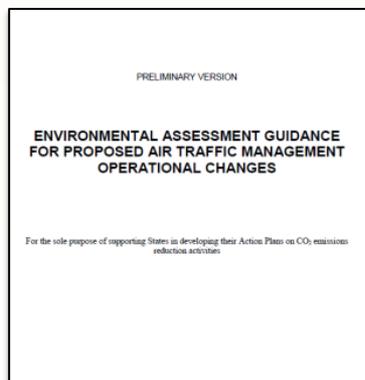
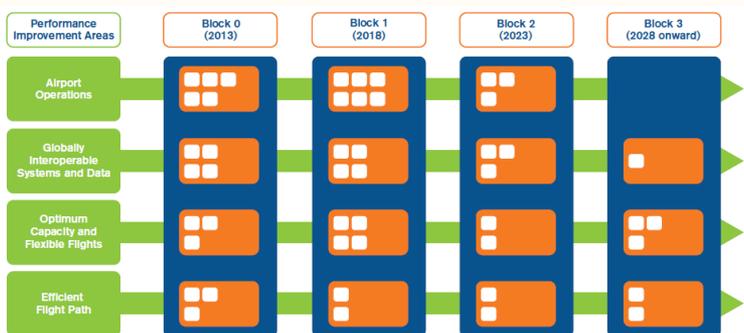


**The CAEP/9 meeting agreed on an
Annex 16, Vol. III certification requirement.**

Operational Improvements

Symposium - Session 3

- Improved air traffic management and infrastructure use
- More efficient operations





Market-Based Measures



Symposium - Session 4

- MBMs aim to contribute to the achievement of environmental goals, at a lower cost, and in a more flexible manner, than traditional command and control regulatory measures
- Substantial effort by ICAO in responding to requests for a framework for MBMs and a global MBM scheme
- 3 options for a global MBM scheme
 - carbon offsetting
 - carbon offsetting with revenue generation
 - emissions trading
- Supported by MBM Experts
- HGCC process – to develop policy recommendations



Sustainable Alternative Fuels for Aviation



Symposium - Session 5

Resolution A37-19 adopted by 37th ICAO Assembly in October 2010 requests the Council to

“Encourage Member States and invite industry to actively participate in further work on sustainable alternative fuels for aviation”



Sustainable drop-in Alternative Fuels for Aviation



FLIGHTPATH TO A SUSTAINABLE FUTURE ICAO's Rio+20 Global Initiative



One of the most exiting and promising opportunities for reducing aviation CO₂ emissions, while improving local air quality

Airlines are using sustainable drop-in biofuels from different feedstocks that **do not require changes to aircraft or fuel delivery infrastructure**

Technological aspects are proved to be viable

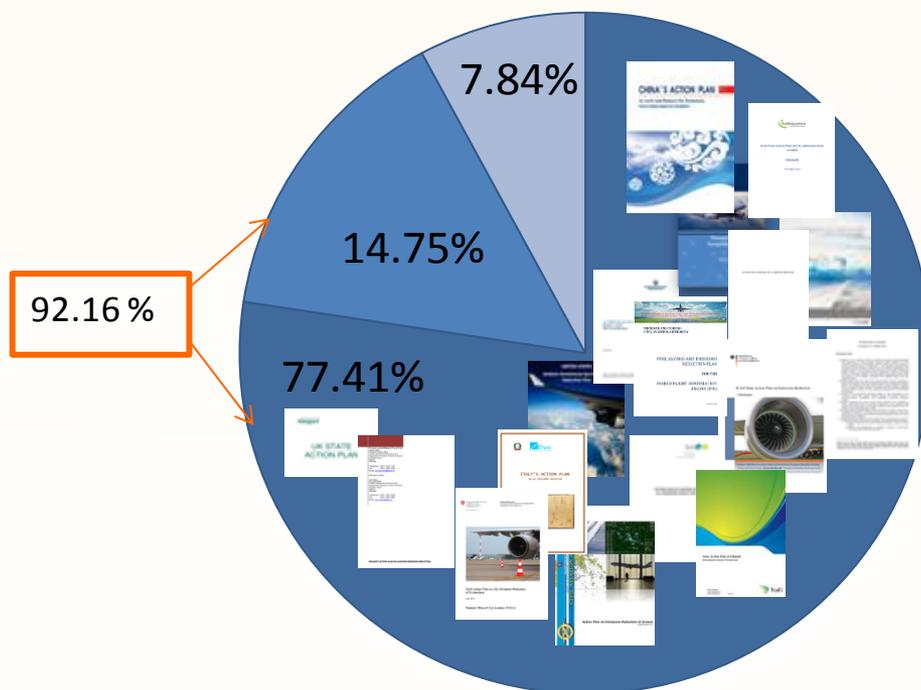
Symposium - Session 5



States' Action Plans

Symposium - Session 7

59 States, representing 77.41% international RTK, submitted an Action Plan as of April 2013



- 59 States submitted an Action Plan
- 23 States plan to submit an Action Plan in 2013
- Remaining States



Assistance and Financing



Symposium - Session 8

- 37th Assembly requested to develop processes and mechanisms to facilitate the provision of technical and financial assistance
- ICAO Assistance Seminar in October 2012 shared information and opportunities for partnerships
- ICAO is exploring possible partnerships with other organizations to facilitate finance for implementation of States' action plans



Cooperation



Liaison with other UN Bodies and International Organizations

Symposium - Session 6

UN Framework Convention on Climate Change (UNFCCC)	<ul style="list-style-type: none"> Implementation of the Convention and Kyoto Protocol (Art 2.2) Post-2012 negotiation on climate change Coordinate activities and inputs to SBI, SBSTA, ADP Aviation emissions data and methodological issues Flexible Mechanisms – Aviation projects for CDM 	UN Economic Commission for Europe (UNECE)	Conferences on transport and environment
Intergovernmental Panel On Climate Change (IPCC)	<ul style="list-style-type: none"> Special Report on Aviation and the Global Atmosphere – 1999 IPCC 4th and 5th Assessment Reports NGGIP – National Greenhouse Gas Inventory Programme – Coordination on methodologies <ul style="list-style-type: none"> IPCC Guidelines for National Greenhouse Gas Inventories IPCC Emissions Factors Database IPCC Emissions Scenarios – Aviation scenarios inputs 	UNECE Convention on Long-Range Transboundary Pollution (CLRTAP)	Protocols on substances – NOx, Volatile organic compounds (VOCs)
UN Environmental Programme (UNEP)	<ul style="list-style-type: none"> EMG/IMG – Carbon Neutral UN Initiative EMG/IMG – Green Economy EMG/IMG – Sustainability Management Sustainable UN (SUN) 	Ozone Secretariat (Montreal Protocol)	<ul style="list-style-type: none"> Updates/guidance regarding Montreal Protocol for the depletion of Ozone Scientific Assessment Panel ANB in charge of use of halons for fire-fighting
UN World Meteorological Organization (WMO)	<ul style="list-style-type: none"> Adaptation Data collection CAEP technical input 	International Standards Organization (ISO)	<ul style="list-style-type: none"> TC20 – Aircraft and space vehicles TC70 – Internal combustion engines* TC146 – Air quality TC207 – Environmental Management*
UN Chief Executives Board for Coordination (UN CEB)	<ul style="list-style-type: none"> Participation on high level meetings Statements on climate change mitigation 	Society of Automotive Engineers (SAE International)	<ul style="list-style-type: none"> Aircraft noise and emissions measurement modeling Committees: A-21 – Aircraft noise measurement Aircraft exhaust emission management Commercial Jet Transport Committee (CJTSC) Ac-9 Aircraft Environmental Systems Committee
UN Commission on Sustainable Development (UN CSD)	<ul style="list-style-type: none"> Agenda 21 and further developments Rio+12 	International Electrotechnical Commission (IEC)	<ul style="list-style-type: none"> Noise Measurement Instruments (electroacoustics, instrument specifications, performance requirements) IEC Publication Nos 179; 225; 651 and 804 IEC 60942; 61094 (parts 3 and 4); 61260 / 61254 / 61672-1
UN World Health Organization (WHO)	Coordination on Noise and Health legislation/research regarding aviation	International Chamber of Commerce – Commission on Transport and Logistics (ICC CST)	Cooperation on air transport liberalization, facilitation, environment and customs facilitation
International Maritime Organization (IMO)	Cooperation on climate change regarding sectoral approaches (bunkers)	World Economic Forum (WEF)	Cooperation on climate change projects
UN World Tourism Organization (UNWTO)	Aviation environmental policies and tourism	International Energy Agency (IEA)	Data sharing on related issues (Fuel, CO ₂)

Other International Organizations participating in CAEP: ACAC, ACI, CANSO, EC, EUROCONTROL, IATA, IBAC, ICCAIA, ICSA, IFALPA



Tools



Symposium - Session 6





Moving Forward - Challenges and Opportunities



Symposium - Session 9

- Many initiatives undertaken and progress made since the last Assembly in various areas
- Roundtable in Session 9 will discuss the main challenges and opportunities for international aviation towards achieving an environmentally sustainable future



Symposium Programme



- Session 1 – Environmental goals, data and tools
- Session 2 – Aircraft noise
- Session 3 – Technology and operations
- Session 4 – MBMs
- Session 5 – Alternative Fuels
- Session 6 – Cooperation with other organizations
- Session 7 – States' action plans
- Session 8 – Financing and Assistance
- Session 9 – Moving Forward: Challenges and Opportunities



Thank You



A large banner for the "Destination Green" event. On the left is the ICAO logo. To its right, the text "Destination Green" is written in a large, bold, italicized black font. Below this, in a smaller black font, is "ICAO Headquarters, Montréal, Canada" and "14 - 16 May 2013". The background of the banner features several green airplane silhouettes flying upwards and to the right, set against a background of curved green and yellow lines.