**STATE ACTION PLANS AND ASSISTANCE**

**WHAT IS AN ACTION PLAN ON CO2 EMISSIONS?**

A State action plan is a strategic document prepared by a State to communicate information on activities to address CO2 emissions from international civil aviation.

**CONTENTS OF AN ACTION PLAN**

- Initial fuel consumption and traffic estimates
- List of selected measures proposed to address CO2
- Information on assistance needs (financial, technological, etc.)
- Expected results (fuel consumption and traffic with the selected measures)

**ACTION PLANS**

By October 2016, States have submitted:

- ICAO assistance project with UNDP and GEF funding, which includes piloting the installation of new and efficient aircraft Ogre systems at two airports in Jamaica and other issues.
- ICAO assistance project with European Union (EU) funding that supports 14 selected States in Africa and in the Caribbean to develop and submit robust action plans, establish a CO2 emissions monitoring system for their aviation sector, and pilot the implementation of mitigation measures to address the impacts.

**ICAO PARTNERSHIPS FOR ACTION ON CLIMATE CHANGE**

To facilitate the development and implementation of action plans, ICAO established partnerships with:

- International civil aviation organizations, for example:
  - To facilitate the development and implementation of States’ action plans, ICAO established partnerships with international organizations, for example:
  - The World Bank, and the Government of Germany to build capacity on action plans and ensure preparedness for climate change.
- Other States and international organizations, for example:
  - ICAO assists States to prepare their action plans by:
    - Partnering States
    - Developing tools
    - Providing training
    - Developing guidance documents (Doc 9988)

**RECYCLING**

**ICAO’S WORK ON RECYCLING**

The ability of the aviation sector to re-use and recycle aircraft parts and to adapt these practices to aircraft end-of-life, without compromising safety and other issues, is valuable as new technological developments.

**ICAO’S ROLE**

- ICAO assists States to prepare their action plans by:
  - Partnering States
  - Developing tools
  - Providing training
  - Developing guidance documents (Doc 9988)

**ON BOARD A SUSTAINABLE FUTURE**

**SUITE OF ICAO TOOLS**

**ICAO ENVIRONMENT**

**TRENDS & GOALS**

**INTERNATIONAL AVIATION IN GLOBAL GHG EMISSIONS**

- Global emissions from aviation increased by 1.8% annually from 2012 to 2016
- As a result, aviation accounts for about 2% of global CO2 emissions.

**ICAO’S ASPIRATIONAL GOALS**

- ICAO has agreed to four aspirational goals for the international aviation sector:
  - A 76% fuel efficiency improvement through 2020 (Compared to 2005)
  - Carbon-neutral growth from 2020 onwards

**ICAO’S BASKET OF MEASURES**

ICAO has identified the following areas that can contribute to the reduction of CO2 emissions:

- Aircraft and engine technology and standards
- Operational improvements
- Development and deployment of sustainable alternative fuels
- Market-based measures

**STATE SUSTAINABLE DEVELOPMENT GOALS**

**CONTRIBUTION OF MEASURES TO REDUCING INTERNATIONAL AVIATION NET CO2 EMISSIONS**

**TRENDS & GOALS**

**SUSTAINABLE DEVELOPMENT GOALS**

- ICAO’s environmental work contributes to the implementation of the SDGs, and in 2016, ICAO identified that aviation’s contribution to the achievement of 10 out of the 17 United Nations SDGs, with measures related to these goals.

**ICAO’S BASKET OF MEASURES**

ICAO has identified the following areas that can contribute to the reduction of CO2 emissions:

- Aircraft related technology and standards
- Operational improvements
- Development and deployment of sustainable alternative fuels
- Market-based measures
- Aviation and climate change.

**A Comprehensive and reliable information guide on aviation and climate change.**

**2016 ENVIRONMENTAL REPORT**

A Compilation and reliable information guide on aviation and climate change. This guide focuses on recent aviation achievements, policies on international aviation and climate change.
CORSIA (Carbon Offsetting and Reduction in International Aviation) is a market-based measure designed to lead to the achievement of ICAO’s aspirational goal of carbon neutral growth from 2020 onwards.

Offsetting or reduction of CO2 emissions will be achieved through the acquisition and retirement of emissions units from the global carbon market by aircraft operators.

**WHY JOIN CORSIA?**
The more States join CORSIA, the more emissions are covered, encouraging the enhancement of integrity of the system.

States that voluntarily participate in the pilot phase of CORSIA will be given priority for real-world operational and verification measurement of the impacts of CORSIA.

Participation in CORSIA will increase the demand for more fuel-efficient technology, particularly increasing technology demonstrations or demonstrations projects, particularly in developing States.

**OPERATIONAL IMPROVEMENTS**
The aircraft operations consist of a broad range of activities related to all stages of air travel, e.g. on the ground before departure: 
- Loading the minimum fuel to safely complete the flight
- Maximizing the aircraft’s load factor
- Taxiing and flying the most fuel-efficient route

Optimization of operational procedures have the potential to reduce emissions through the minimization of the amount of fuel used in each flight by:
- 20% less drag with the use of aircraft configurations (split flap, landing gear, engines)
- 20% less weight due to the reduction of fuel load
- 20% less fuel with the use of route planning technologies

- Derived from non-participating ICAO Parties Market Basket prices

**TECHNOLOGY & STANDARDS**
AEROPLENE CO2 EMISSIONS STANDARD
This international global harmonizing Standards & Recommended Practices (S&RP) process is to develop a harmonized set of technology neutral emission factors for all aircraft designs, categories and operators.

- New aircraft type designs from 2020
- Aircraft type designs that are already in production in 2021, with a 2030 production date of final form and non-compliance

**TECHNOLOGY & STANDARDS**
OPERATIONAL IMPROVEMENTS

Emission reduction opportunities:
- Optimize aircraft configurations with appropriate technology
- Minimize fuel load for each flight
- Reduce drag
- Reduce weight
- Optimize route planning
- Minimize aircraft Speed

**ICAO’S ROLE**
ICAO has developed the Global Standard for Reporting, Review and Verification (GSRV) to establish transparency in the process of monitoring and verifying CORSIA.

The GSRV will be administered by a Specialized Agency of ICAO, the International Civil Aviation Organization (ICAO) in consultation with States and stakeholders.

**CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION**

**ROUTE-BASED APPROACH**

**SUSTAINABLE ALTERNATIVE FUELS**
Sustainable alternative fuels have the potential to be sustainably produced and to generate lower carbon emissions than conventional jet fuel, hence the reduction in fuel consumption and CO2.

These are fuels that function the same way as traditional jet fuel, so they do not require any changes to aircraft infrastructure — avoiding logistical, safety and cost issues.

**ICAO’S ROLE**
ICAO’s role is to oversee and promote the development of sustainable alternative fuels and to monitor their implementation.

**FEEDSTOCKS**
ICAO is currently working on the development of Standards and/or related guidance material for:
- Very small emitting operators, new entrants
- Participation in the pilot phase and first phase
- States that are not included in CORSIA

**IMPACTS & BENEFITS**
- 80% MORE FUEL EFFICIENT
- 75% QUIETER