

**55th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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AGENDA ITEM 7: AVIATION AND ENVIRONMENT

**PROGRESS REPORT ON JAPAN'S BASKET OF MEASURES
CONCERNING CO₂ REDUCTION IN AVIATION FIELD**

Presented by Japan

SUMMARY

This paper reports the progress of Japan's efforts to reduce CO₂ emissions from the aviation field.

Japan updated its State Action Plan in June 2018 and is proactively taking new approaches as well as continuing the past vigorous efforts to reduce CO₂ emissions.

Also, Japan is conducting activities at home and abroad to promote an understanding of ICAO CORSIA to be introduced from 1 January 2019. For a successful implementation of CORSIA, understanding of each State, sufficient preparation for the start of monitoring, and active voluntary participation toward a carbon offset are important.

PROGRESS REPORT ON JAPAN'S BASKET OF MEASURES CONCERNING CO₂ REDUCTION IN AVIATION FIELD

1. Introduction

1.1 In 2010, Assembly Resolution A37-19 encouraged States to submit their action plans outlining their respective policies and actions to ICAO, with regard to activities for CO₂ emissions reduction in order to address climate change. It also invited those States that chose to prepare their action plans to submit them to ICAO preferably by the end of June 2012, and the action plans should include information on the basket of measures considered by States.

1.2 In 2013 and 2016, Assembly Resolution A38-18 and A39-2 further encouraged States to submit their voluntary action plans to ICAO and invited those States that chose to prepare or update their action plans to submit them to ICAO as soon as possible and once every three years thereafter.

1.3 Based on these resolutions, Japan updated its State Action Plan incorporating the Basket of Measures to address the climate change, and submitted it to ICAO Secretariat in June 2018. This paper reports the progress of the Basket of Measures for CO₂ reduction in the aviation field in Japan based on the latest version of our State Action Plan recently submitted.

1.4 One of the Basket of Measures to achieve ICAO's Global Aspirational Goals (Goals resolved at 2010 General Assembly to achieve 2% annual fuel efficiency improvement through 2050 and keep the global net carbon emissions from international aviation from 2020 at the same level) is an economic approach to reduce CO₂ emissions, which showed major developments in the discussions. As a result, CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation), emissions offsetting scheme through purchase of credits, was adopted to be included in Annex 16 Volume IV to the Convention on International Civil Aviation, and will start its operation in full swing next year. In this regard, this paper also introduces Japan's efforts toward a coming start of CORSIA operation.

2. Japan's Basket of Measures

2.1 Japan maintains the goal to achieve 1.5% annual fuel efficiency improvement of both domestic and international aviation in 2020 with a baseline year of 2005 in the State Action Plan updated in June 2018. Japan views the global warming and the climate change as the significant challenge, and takes various aggressive measures such as introduction of fuel efficient aircraft, upgrading of aviation traffic system, and promotion of GPU installation at airports. Thanks to a series of such measures, CO₂ emissions from domestic and international aviation in Japan was 24.77 million tons in 2016, which is 12% reduction compared with 2005 in spite of 9% increase of the traffic volume (Tonne-kilometers performed).

2.2 Japan will continue such efforts and will strenuously take additional measures so that we can achieve the goal established in the Action Plan despite an increasing air transport demand.

2.3 In order to achieve the goal, Japan intends to continue and enhance Japan's Basket of Measures including fuel efficiency maintain/improvement of aircraft, operational improvements, introduction of alternative aviation fuels, and domestic institutionalization of ICAO standards such as CORSIA.

2.4 Regarding a fuel efficiency maintain/improve of aircraft, Japanese airlines continue to introduce lightweight and fuel efficient new type aircraft. Also, they promote fuel efficiency improvement such as installing winglets to existing aircraft and proceed with efforts to avoid deterioration of fuel efficiency by regularly washing the inside of engines without any alterations of aircraft.

2.5 Japan has been developing Mitsubishi Regional Jet (MRJ), first domestic jet airliner, and JCAB is now conducting inspection of its compliance with safety and environment standards. MRJ will realize a significant 20% or more improvement of fuel efficiency compared with conventional aircraft by equipping state-of-the-art engines and employing the most advanced aerodynamic design. We expect further reduction of CO₂ emissions by introducing such excellent aircraft.

2.6 Regarding operational improvements, we have been introducing RNAV method utilizing satellites as major sensors since 2007, and about 250 RNAV routes have been established across the country by 2018. RNAV route can shorten a flight path compared with the conventional route, which is subject to the restriction by the location of the ground navigation facilities. In addition, we are promoting the introduction of RNP (Required Navigation Performance) whose precision is higher than RNAV to departure and approach procedures. This enables us to set routes where RNAV routes were unable to set, and further promotes operational efficiency. Furthermore, we are studying a new approach procedure which combines PBN (Performance Based Navigation) and GBAS (Ground Based Augmentation System) with an expectation of safer and more efficient approach procedures.

2.7 As other efforts to improve aircraft operation efficiency, we have been conducting various measures such as gradual expansion of airports that introduce CDO (Continuous Descent Operations) to avoid changing engine thrust for energy saving by maintaining the best-suited rate-of-descent until Initial Approach Fix without level flight during the descent for landing, and official start of operation of the method to make a change to the air route with higher efficiency in accordance with the latest weather condition and flight condition.

2.8 In addition, we will address a variety of operational measures other than the above such as trimming the weight of on-board items including containers, reducing actual crew training flights by making the full use of flight simulators, and reducing travel time of aircraft on airports by developing the optimum taxiways.

2.9 Regarding introduction of alternative aviation fuels, it is generally expected that the bio jet fuels will greatly contribute to CO₂ emissions reduction in view of the life cycle including the growing process of the feedstock. Therefore, Japan is developing next generation bio jet fuels such as algae and BTL.

2.10 Specifically, in consideration of the ICAO goals referred to the above Paragraph 1.4, with the aim to set a milestone in 2020 Tokyo Olympics and Paralympics toward promotion of bio jet fuels, we have organized the study committee to sort out and solve issues in order to realize a flight using bio jet fuels in 2020.

2.11 Regarding domestic institutionalization of ICAO standards, we are progressing the consideration in full coordination with the parties concerned on the CO₂ standards for aircraft to be applied from 2020 and the CORSIA to be described below.

3. APPROACHES TO ICAO CORSIA

3.1 As mentioned above, International Standards and Recommended Practices (SARPs) developed by ICAO on CORSIA was adopted in June 2018. And this SARPs requires that applicable operators shall offset its allocated carbon emissions amount within the total emissions from international aviation exceeding that of 2020 level. Task forces including Global MBM Technical Task Force (GMTF) were established under the Committee on Aviation Environmental Protection (CAEP) to proceed with the detailed study of CORSIA. Japan has been actively engaging in the arguments by coordinating the cooperation between CAEP and GMTF, and by serving as a co-chair of a task of GMTF.

3.2 CORSIA requires to offset emissions from flight routes between the voluntarily participating State pairs during the period from 2021 to 2026, and Japan has announced to participate in this voluntary scheme at an early date.

3.3 Furthermore, prior to the start of offset requirements, it is required to initiate emissions monitoring from 2019. Japan is in the process of establishing a domestic regulation to incorporate CORSIA through repeated coordination work with stakeholders including airlines. Prime requirement for smooth implementation of CORSIA is that each concerned party gains a better understanding of this scheme before participation. In this context, as stakeholders have a gap in their level of understanding on CORSIA, Japan has held several briefing sessions to share the knowledge among all parties concerned and to enrich their understanding through close communications.

3.4 Japan has been actively working on the overseas partners as well as Japanese partners to promote CORSIA. For example, Japan served as a facilitator of group discussions at the ICAO regional seminar held in Brisbane in April 2018 to encourage the participants to gain a better understanding of CORSIA. In addition, Japan participated with six other States in the Small Scale Implementation Project that was a part of capacity building activities for CORSIA to conduct simulated activity on MRV requirements of CORSIA. Furthermore, Japan has been actively participating in the ACT-CORSIA activity currently being promoted by ICAO, which conducts capacity building between the States. Japan is providing/preparing to provide the training by our experts trained at ICAO Headquarters to the target States (Cambodia, Myanmar, Bhutan, Bangladesh and Afghanistan).

3.5 CORSIA is an international initiative. Most importantly, Member States of the Convention on International Civil Aviation shall introduce monitoring system in an appropriate manner for this new initiative to obtain clear and highly reliable amount of CO₂ emissions from international aviation. In addition, in order to achieve the aspirational goals set by ICAO, it is our hope that as many States as possible will voluntarily participate in the offset scheme.

4. ACTION BY THE CONFERENCE

4.1 The Conference is invited to:

- a) note the efforts made by Japan to reduce CO₂ emissions from Japanese aviation field;
- b) request to proactively share the efforts made by the respective States to reduce CO₂ emissions from the aviation field;
- c) recall that the launch of ICAO CORSIA is imminent, and share the recognition that it is essential to promote understanding of respective States, make preparations for introduction of monitoring, and actively and voluntarily participate in the offset scheme, in order to implement CORSIA smoothly and effectively.

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