

**54th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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AGENDA ITEM 5: AVIATION AND ENVIRONMENT

**VIEWS AND EFFORTS OF JAPAN ON MONITORING
CO₂ EMISSIONS FROM AVIATION**

(Presented by Japan)

SUMMARY

This Discussion Paper introduces Japan's scheme and efforts with regard to the monitoring and reporting of CO₂ emissions from the aviation sector.

Japan has set its aspirational goal of achieving an annual average of 1.5% improvement in fuel efficiency, as described in our State Action Plan, to address CO₂ emissions from aviation, and requests our air carriers to report their CO₂ emissions and Revenue Ton-Kilometers (RTKs) in order to recognize the achievement progress of such goal.

This Discussion Paper also highlights the importance of MRV (Monitoring, Reporting and Verification) implementation in international aviation in order to start the global market-based measure, i.e., Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), adopted at the 39th ICAO Assembly.

VIEWS AND EFFORTS OF JAPAN ON MONITORING CO₂ EMISSIONS FROM AVIATION

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 choose 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 ICAO also requires that States report fuel consumption and traffic through Statistical Air Transport Reporting Form M – *Fuel Consumption and Traffic – International and Total Services, Commercial Air Carriers*, annually.

1.4 With regard to the establishment of States' Action Plans, ICAO Doc 9988 "Guidance on the Development of States' Action Plans on CO₂ Emissions Reduction Activities" defines the five basic elements of an Action Plan as minimum requirements, one of which is Baseline fuel consumption (CO₂ emissions) and traffic. It describes the usefulness of quantifying both the historic fuel consumption and traffic and provides general guidance for States to establish a baseline for their fuel consumption and traffic.

2. JAPAN'S EFFORTS WITH REGARD TO MONITORING CO₂ EMISSIONS

2.1 Japan has established its State Action Plan in October 2012 and updated it in July 2015. In our Action Plan, we have set our target of achieving an average of 1.5% year-on-year improvement in fuel efficiency, as one of Japan's Aspirational Goals, and have taken so far and continue to take technical measures to achieve our goals. Fuel efficiency is evaluated by using the index of fuel consumption per RTK.

2.2 In order to attain such fuel efficiency improvements, our State Action Plan describes that we will take various measures that include; 1) Promoting the introduction of fuel-efficient aircraft, 2) Sustaining fuel-efficient performance by conducting adequate maintenance, 3) Operational improvement, and 4) Emissions reduction measures during parking on the ground etc.,.

2.3 The transition of fuel efficiency by Japan's major air carriers is shown in Figure 1. The latest data in 2015 clearly shows that we have achieved approximately 17% improvement in fuel efficiency compared to that of 2005 as a result of our continued efforts.

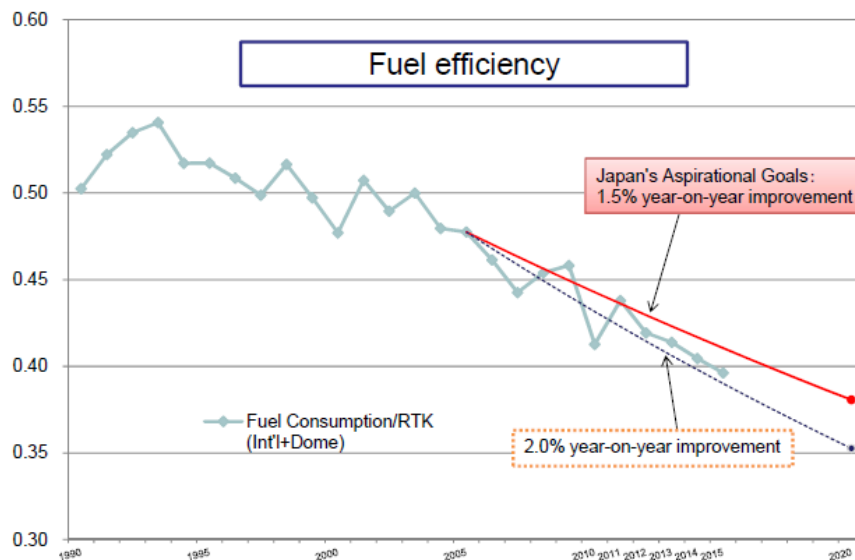


Figure 1. Improvements in Fuel Efficiency

2.4 In order to calculate the fuel efficiency and recognize the progress of achievement of these aspirational goals, we need to have a precise data of total fuel consumption and total Revenue Ton-Kilometers (RTKs) provided by Japanese air carriers.

2.5 In Japan, we have two independent schemes to collect such data. One is a periodic report under the “Act on Rationalizing Energy Use.” Every year, major Japanese air carriers are required to submit this report with a total amount of fuel consumption and the sum of RTKs during the reporting period by filling the template as shown in Figure 2A and 2B.

Type of energy	Unit	Consumption	
		Fiscal year xxx	Calorific value GJ
Gasoline	kl	kl	GJ
Jet fuel oil	kl	kl	GJ
Diesel	kl	kl	GJ
Heavy Fuel oil A	kl	kl	GJ
Heavy Fuel oil B and C	kl	kl	GJ
etc.....			
Total GJ			GJ
Crude oil equivalent kl			kl
Crude oil equivalent of the previous fiscal year kl			kl
% over the previous year			

Figure 2A. Excerpt of energy usage report on transportation: Energy Consumption

		Fiscal year xxx	% over the previous year
Specific Energy Consumption	=	$\frac{\text{Energy consumption (Fuel burn [KL])}}{\text{Revenue Tonne-Kilometres}}$	

Figure 2B. Excerpt of energy usage report on transportation: Specific Energy Consumption

2.6 The other one is the Air Traffic Statistics Monthly Report under the “Statistics Act”, which is shown in **Appendix A**. This report is mandatory for all Japanese air transport operators and aerial work operators. Fuel consumptions in domestic and international operations must be reported separately in combination with flight distance, payload, total RTKs, etc., every month. This form of report enables us to get the total RTKs, fuel consumption, etc., of each operator and then to calculate to what extent our aspirational goals are achieved. We can comprehensively figure out the improvement of fuel efficiency through these reports. These reports are playing an important role in calculating the amount of CO₂ emissions from aviation and the fuel efficiency of Japan’s aviation sector.

3. ADOPTION OF CORSIA AND THE IMPORTANCE OF MRV IMPLEMENTATION

3.1 To address CO₂ emissions from international aviation, a Global Market-Based Measure scheme for international aviation, in the form of Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), was adopted at the 39th ICAO Assembly, as part of basket of measures to achieve the global aspirational goal of keeping the global net CO₂ emissions from international aviation at the same level from 2020.

3.2 According to the Assembly Resolution A39-3, offsetting requirements will be applicable to all aircraft operators on the same routes between States, both of which are included in the CORSIA, as described in paragraph 9 of A39-3. And the amount of CO₂ emissions from international aviation above the 2020 level is required to be offset by the air operators with respective offsetting requirement calculated according to paragraph 11 of A39-3.

3.3 Since the 2020 level as the baseline of offsetting requirements is to be calculated as an average of total emissions covered by CORSIA between 2019 and 2020, all the member States whose aircraft operators undertake international flights are requested to conduct necessary arrangements in accordance with the MRV SARPs from 1 January 2019.

3.4 It is critically important for all the ICAO member States to accurately calculate the amount of CO₂ emissions from international aviation on and after 1 January 2019 in order to have the 2020 level defined precisely. It is, in turn, absolutely necessary for all aircraft operators with international flights to measure the amount of fuel consumption accurately and to report them to their administering State, and for all the member States to collect all the emissions data applicable and ensure that the total amount of CO₂ emissions be shared at the global level.

4. ACTION BY THE CONFERENCE

4.1 The Conference is invited to:

- a) take note of Japan’s abovementioned efforts in the monitoring CO₂ emissions from aviation.
- b) recognize the importance of MRV of CO₂ emissions from international aviation in order to ensure the steady implementation of CORSIA in line with the timeline as adopted at the 39th ICAO Assembly.

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