58th CONFERENCE OF DIRECTORS GENERAL OF CIVIL AVIATION ASIA AND PACIFIC REGIONS

Dhaka, Bangladesh
15 to 19 October 2023

AGENDA ITEM 7: AVIATION AND ENVIRONMENT

PERSPECTIVES ON PROMOTING THE GREEN TRANSFORMATION OF GLOBAL CIVIL AVIATION IN A FAIR AND REASONABLE MANNER, WITH EACH COUNTRY MAKING CONTRIBUTION TO THE BEST OF ITS ABILITY

(Presented by People's Republic of China)

INFORMATION PAPER

SUMMARY

China's civil aviation upholds the green development philosophy and is proactive in addressing international aviation and climate change issues. China always strives to build a fair and rational climate change governance system in international aviation industry, and advocates the acknowledgement and implementation of the principles of equity, common but differentiated responsibilities (CBDR) and respective capabilities in international aviation and climate change.

PERSPECTIVES ON PROMOTING THE GREEN TRANSFORMATION OF GLOBAL CIVIL AVIATION IN A FAIR AND REASONABLE MANNER, WITH EACH COUNTRY MAKING CONTRIBUTION TO THE BEST OF ITS ABILITY

1. INTRODUCTION

1.1 China's civil aviation industry has been upholding the green development philosophy and taking tangible actions to effectively satisfy people's needs on air travel while limiting and reducing the carbon and environmental footprints of aviation activities.

1.2 By July, 2023, the CO_2 emissions per ton-kilometer of China's civil aviation has dropped by 11% compared with 2005, and the CO_2 emissions per passenger has declined by 42% compare with the baseline, which is the average level from 2013 to 2015.

1.3 The optimization of temporary air routes has resulted in a saving of 200,000 tons of fuel consumption and 650,000 tons of CO_2 emissions. The commercial use of sustainable aviation fuels (SAF) has been accelerated, with a number of commercial flights have refueled with 5%-15% blended SAF. The electrification rate in airports is close to 60%, and cleaner energies, including solar energy and geothermal energy, accounts for more than 1% of airport energy consumption.

1.4 On the basis of equality and mutual respect, China is willing to strengthen communication and collaboration with all parties to contribute to a win-win sustainable development of global aviation, with each country making contribution to the best of its ability.

2. DISCUSSION

2.1 International aviation CO_2 emissions are anthropogenic emissions, and to address climate change in international aviation industry is an integral part of global climate governance. As a main platform for countries to cooperate in addressing climate change, UNFCCC offers a legal framework for global climate governance, which should follow the basic principles of equity, CBDR and respective capabilities enshrined by UNFCCC and its Paris Agreement.

2.2 The historical accumulative emissions of developed countries in the last 200 years leads to the current climate change. UNFCCC and its Paris Agreement request that the developed countries shall take the lead in significantly reducing GHG emissions and provide new and additional financial resources to developing countries, including the transfer of much-needed technology.

2.3 To address climate change in the international aviation industry, the formulation of emission reduction targets, measures, and standards developed by ICAO should fully consider the basic principles of global climate governance and fair opportunities for the development of international aviation among ICAO Member States. Particularly, any direct or indirect discrimination that hinders developing countries' fair opportunities to develop international aviation in the name of emissions reduction should be avoided.

2.4 The developed countries' failure to fully and effectively fulfil their international obligations under the UNFCCC through ICAO, leaves developing countries and emerging market economies, in achieving the so-called collective global goal of net-zero carbon for international aviation by 2050, no choice but to either abandon the development of international aviation and accept that their civil aviation industry is locked in at a very low level, or be burdened with more than unfair responsibilities to reduce international aviation emissions. A preliminary analysis shown in Appendix A shows that the accumulative amount of emission reductions for developing countries and emerging market economies accounts for 1.55 or 2.23 times of that for developed countries.

2.5 It is believed that the goal of CNG2020, CORSIA implementation programmes and "collective long-term aspirational goal" (LTAG 2050) are inconsistent with the international laws and basic principles of global climate governance.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this Paper.

— END —

Appendix A
Analysis on Inequity of the 2050 Net-Zero Carbon Emissions Goal for International Aviation

I. EMISSIONS PROJECTIONS

(i) Scenario Assumptions

This paper presents estimates based on IEA international aviation emissions data[1], and the classification of developed and developing countries based on the Annex to *World Economic Situation and Prospects*[2] published by the United Nations. The growth rates of international aviation emissions are shown in Table 1.

Table 1: Average annual growth rates of international aviation emissions in developed and developing countries

Year	Country classification	Average annual growth
2000-2010	Developed countries	0.9%
	Developing countries	4.7%
2010-2018	Developed countries	2.6%
	Developing countries	4.4%

1. 2019 emissions: According to IEA (2018) and ICAO (2019), global international aviation emissions are approximately 600 million tonnes.

2. Growth scenario assumptions

Scenario 1: Assuming that international aviation carbon emissions return to 2019 levels in 2025, the growth rate of international aviation emissions in 2026-2030 is the average annual growth rate of 2000-2010, and the average annual growth rate of international aviation emissions in 2031-2035 is 0.5% lower than in 2026-2030, and 0.5% lower every five years thereafter than in the previous cycle.

Scenario 2: Assuming that international aviation carbon emissions return to 2019 levels in 2025, the growth rate of international aviation emissions in 2026-2030 is the average annual growth rate of 2010-2018, and the average annual growth rate of international aviation emissions in 2031-2035 is 0.5% lower than in 2026-2030, and 0.5% lower every five years thereafter than in the previous cycle.

The changes in the average annual growth rate of international aviation carbon emissions under the two scenarios are shown in Table 2.

Table 2: Average annual growth scenarios for international aviation emissions in developed and developing countries

Scenario	Country classification	2019 (Baseline, Mt)	Average annual growth rate				
			2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
Scenario 1	Developed countries	283	0.9%	0.4%	-0.1%	-0.6%	-1.1%
	Developing countries	320	4.7%	4.2%	3.7%	3.2%	2.7%
Scenario 2	Developed countries	283	2.6%	2.1%	1.6%	1.1%	0.6%
	Developing countries	320	4.4%	3.9%	3.4%	2.9%	2.4%

1 IEA (2020), *CO_2 Emissions from Fuel Combustion 2020 Edition*, https://iea.blob.core.windows.net/assets/474cf91a-636b-4fde-b416-56064e0c7042/WorldCO2_Documentation.pdf

2 United Nations (2020), *World Economic Situation and Prospects*, https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-2020/

(ii) Target Assumptions

Net carbon emissions from international aviation for 2021-2035 are fixed at the baseline of 2019 emissions; the emissions baseline declines linearly from 2036 to 2050 to achieve the net-zero emissions goal in 2050. Due to the impact of the COVID-19 pandemic, reductions in international aviation emissions above the baseline in 2021-2026 are negligible, and this paper focuses on the analysis after 2027. At the same time, considering that the IEA's international aviation emissions data are calculated based on fuel consumption and already include changes in fuel efficiency due to aircraft technology updates and operational improvements, the emission reductions in this paper refer to the total reduction amount to be realized by purchasing SAF and eligible emission reduction units.

(iii) Projections Results

According to the estimate of Scenario 1 in Table 2 above, the total global international aviation emissions in 2050 would be about 1070 Mt, of which about 280 Mt would be emitted by developed countries and about 790 Mt by developing countries; according to the estimate of Scenario 2, the total global international aviation emissions in 2050 would be about 1160 Mt, of which about 420 Mt would be emitted by developed countries and about 740 Mt by developing countries. The estimated total international aviation emissions under both scenarios are close to those projected in CAEP's IS3 scenario (low air transport growth) in the Report on the feasibility of a long-term aspirational goal (LTAG) for international civil aviation CO_2 emission reductions[3]. The emission projections for developed and developing countries for 2027-2050 are shown in Figure 1.

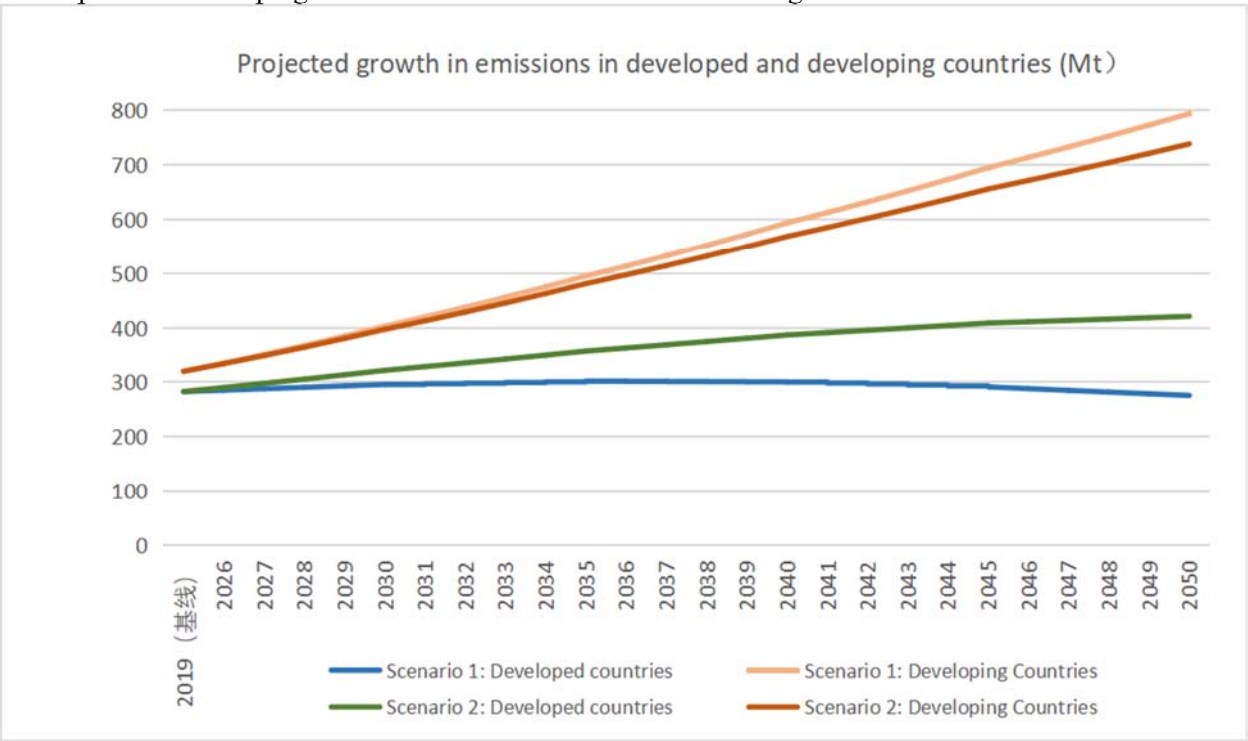

Figure 1: Emissions projections for developed and developing countries for 2027-2050

(iv) Gaps between Emissions and Goals

The gaps between emissions and the 2050 net-zero carbon emissions goal in developed and developing countries are shown respectively in Figures 2 and 3.

3CEAP (2019), *Report on the feasibility of a long-term aspirational goal (LTAG) for international civil aviation CO_2 emission reductions*, https://www.icao.int/environmental-protection/LTAG/Pages/LTAGreport.aspx

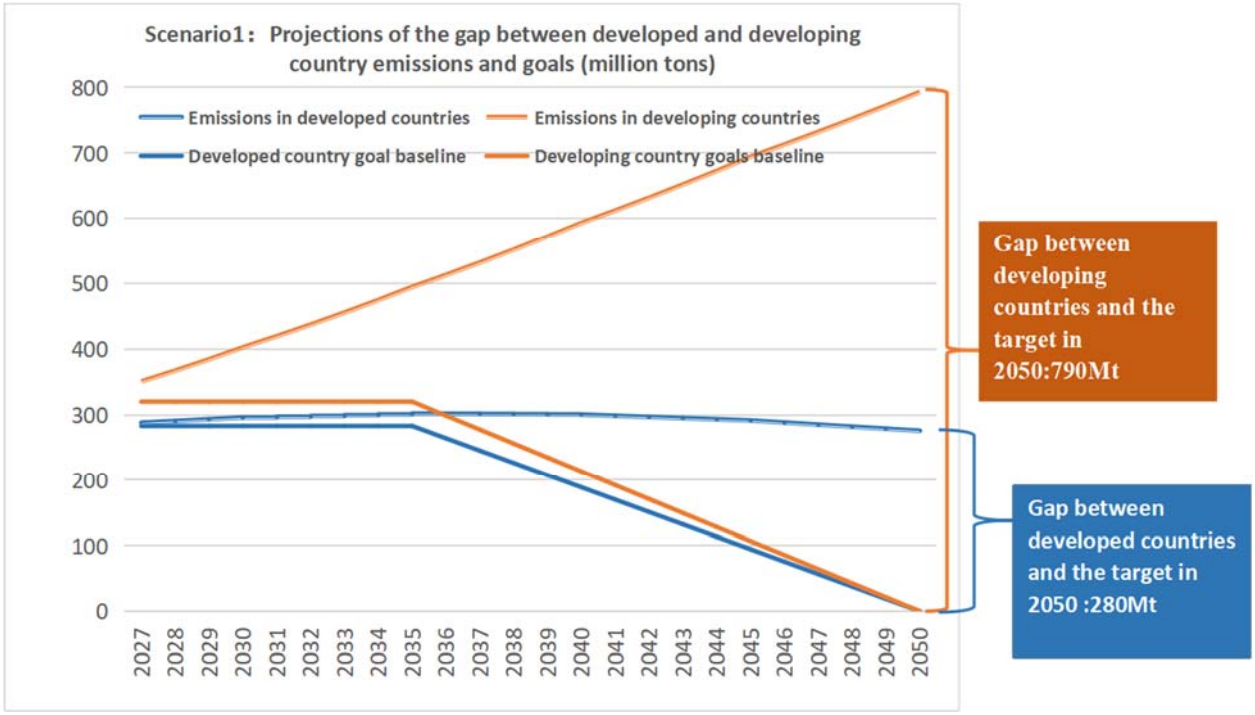

Figure 2: Gaps between international aviation emissions and the 2050 net-zero carbon emission goal for 2027-2050 for developed and developing countries under Scenario 1 (in Mt)

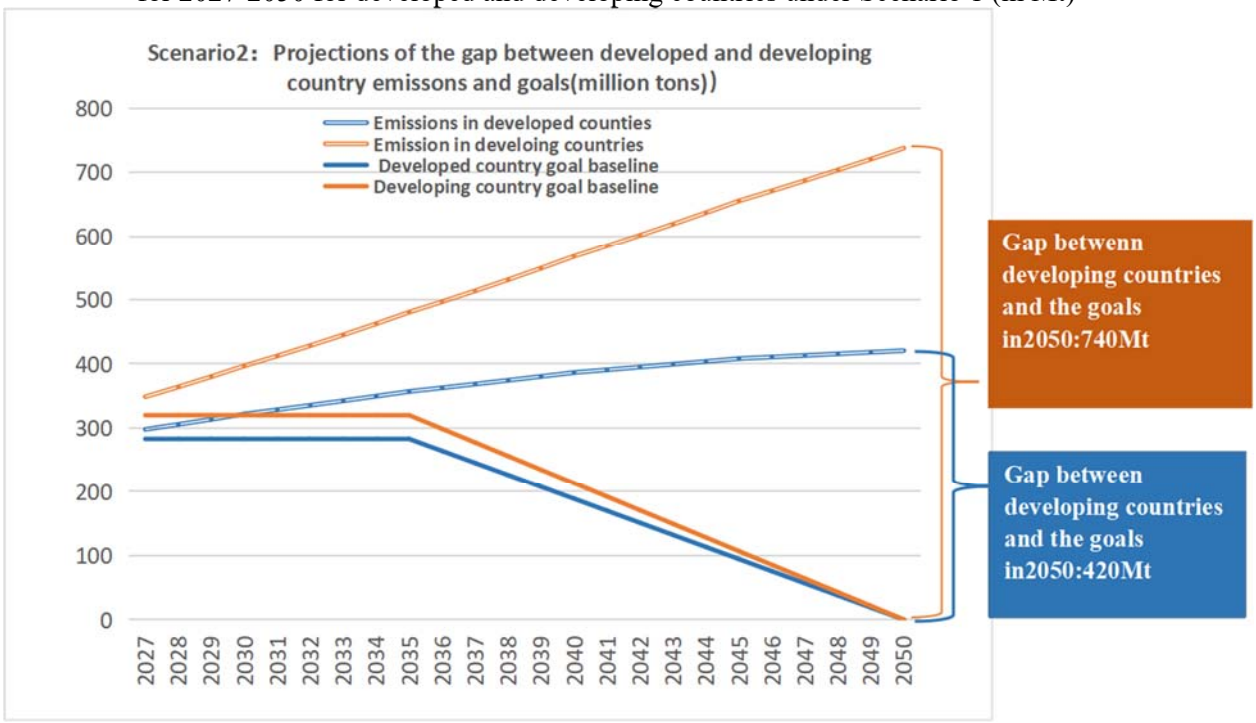

Figure 3: Gaps between international aviation emissions and the 2050 net-zero carbon emissions goal for 2027-2050 in developed and developing countries under Scenario 2 (in Mt)

II. COMPARATIVE ANALYSIS OF EMISSION REDUCTIONS OBLIGATIONS FOR DEVELOPED AND DEVELOPING COUNTRIES

If the existing CORSIA scenario (15% for individuals and 85% for sectors) moves on in 2036-2050, the 2027-2050 accumulative emissions, accumulative emission reductions, and accumulative emission reductions as a percentage of accumulative emissions for developed and developing countries will be projected as shown in Table 3.

Table 3: Emissions, emission reductions from developed and developing countries, 2027-2035

Scenario	Country classification	Accumulative Emissions 2027-2035 (Mt)	Accumulative Emissions 2036-2050 (Mt)	Accumulative Emission Reductions 2027-2035 (Mt)	Accumulative Emission Reductions 2036-2050 (Mt)	Accumulative Emission Reductions 2027-2050 as a proportion of Accumulative Emissions
Scenario 1	Developed countries	2666	4391	733.63	3119.49	54.60%
	Developing countries	3787	9786	1105.78	7469.82	63.18%
Scenario 2	Developed countries	2952	5948	897.44	4464.30	60.25%
	Developing countries	3719	9276	1160.42	7171.20	64.12%

In order to achieve the goal of net-zero carbon emissions by 2050 for international aviation, in terms of absolute volumes, the accumulative emission reductions (emission reduction obligations to be undertaken) for 2027-2050 for developing countries are respectively 4.72 billion tonnes (Scenario 1) or 2.97 billion tonnes (Scenario 2) more than for developed countries. In terms of the emissions reduction cost, the report "*Making net-zero aviation possible: an industry-backed, 1.5°C-aligned transition strategy*"[4] shows that the accumulative investment from 2027 to 2050 for the global air transport industry to achieve net-zero carbon by 2050 would be $4.9 trillion, with an accumulative investment of $3.4 trillion (Scenario 1) or $3 trillion (Scenario 2) for developing countries and $1.5 trillion (Scenario 1) or $1.9 trillion (Scenario 2) for developed countries, based on the proportion of emissions reductions in developed and developing countries. In terms of accumulative emission reductions as a percentage of accumulative emissions, the emissions in developing countries are 8.6% (Scenario 1) and 3.9% (Scenario 2) higher than that in developed countries, which, even at a cost of $100 -$400 per tonne of carbon emissions, equates to developing countries spending $8.6-$34.4 (Scenario 1) or $3.9-$15.6 (Scenario 2) more per tonne of emissions than developed countries. It conflicts with the principles of equity and CBDR, for developing countries bearing higher abatement cost intensity than developed countries, which would also cause competitive market distortions to the disadvantage of developing countries and hence hinder the growth of the air transport in developing countries.

— END —

4 The Mission Possible Partnership (2022), *Making net-zero aviation possible: an industry-backed, 1.5°C-aligned transition strategy,* https://missionpossiblepartnership.org/wp-content/uploads/2022/07/Making-Net-Zero-Aviation-possible.pdf