

**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

**COLLABORATIVE APPROACH IS REQUIRED TO MEET THE
2050 FEEDSTOCK DEMAND TO PRODUCE TARGETED
SUSTAINABLE AVIATION FUEL (SAF)**

(Presented by Bangladesh)

SUMMARY

There is no alternate of Sustainable Alternative Fuel (SAF) to achieve the ICAO's net zero carbon by 2050 goal. States are working under the leadership of ICAO to enhance their production capabilities. Every step of the supply chain of SAF is equally important. However, not all countries have equal capabilities in this regard. As a result, achieving net zero carbon by 2050 globally would be a great challenge. State's variations in production of SAF are obvious due to the variations of availability of feedstock. It is true that a collaborative approach among States may provide equal opportunity in SAF production.

The Conference is invited to:

- a) Encourage States/Administrations to share their experiences of availability of feedstock compared to the present and future demand; and
- b) Request ICAO to provide adequate support to the States on formulation of collaborative policy level documents to ensure availability of feedstock to meet the future demand globally.

COLLABORATIVE APPROACH IS REQUIRED TO MEET THE 2050 FEEDSTOCK DEMAND TO PRODUCE TARGETED SUSTAINABLE AVIATION FUEL (SAF)

1. INTRODUCTION

1.1 Presently countries of the world are mostly dependent on fossil fuel. This rate of reliance is increasing fast, and it is high time to be aware of the stock. As fossil fuels are non-renewable, the diminution of this type of energy source is obvious. Not only the high depletion rate but also the combustion products of fossil fuels are also a matter of concern as the world is already facing global warming as one of its consequences.

1.2 At the 2nd ICAO Conference on Aviation Alternative Fuels (CAAF/2) held in Mexico City on October 2017, ICAO Member States decided to meet ICAO's vision: Aviation Alternative Fuels which helped to ensure that a significant proportion of conventional aviation fuels are substituted with SAF by 2050.

1.3 Transition from Aviation Turbine Fuel (ATF) to Sustainable Aviation Fuel (SAF) represents a significant opportunity to reduce emissions from the global aviation sector. The attention of the aviation industry is on the development of “drop-in” fuels, i.e., fuels that do not require any changes to aircraft or fueling infrastructure.

1.4 Air Transport is one of the hardest-to-abate sectors when it comes to reducing carbon emissions, with SAF currently the only way to decarbonize the sector at pace and at scale. Utilizing a wide range of feedstocks is key to the production of SAF, as is the ongoing evolution of production pathway options. ICAO is working with the governments, NGOs, authorities, financial institution and other stakeholders of SAF supply chain to help meet future SAF demand.

2. DISCUSSION

2.1 By analysing data collected from internal and external sources the experts focused on the following three categories:

- (i) Sustainable Aviation Fuels (LTAG-SAF),
- (ii) Lower Carbon Aviation Fuels (LTAG-LCAF), and
- (iii) Non-drop-in Fuels.

2.2 Different types of feedstock can be used to produce SAF. Such feedstocks are broadly categorized into four categories under the CORSIA framework: (i) Primary and co-products, (ii) By-products, (iii) Wastes, and (iv) Residues. Primary and co-products are the main products of a production process. These products have significant economic value and elastic supply. By-products are secondary products with inelastic supply and economic value. Wastes are materials with inelastic supply and no economic value. Raw materials or substances that have been intentionally modified or contaminated to meet this definition are not covered by this definition. Residues are secondary materials with inelastic supply and little economic value.

2.3 Production of drop-in fuels from biomass, solid waste and liquid waste require a hydrocarbon source (feedstock) and a conversion process. Feedstocks for these fuels include a variety of renewable resources such as dedicated energy crops, municipal solid waste (MSW) and fats, oil and grease (FOG). These feedstocks can be processed via existing technologies currently approved by ASTM International under several annexes including hydroprocessed esters and fatty acids (HEFA), alcohol to jet (ATJ) and catalytic hydrothermolysis jet (CHJ), among others.

2.4 Production of drop-in fuels from atmospheric CO₂ and Waste CO₂ depends on electricity, which, in many configurations, can be the most significant input, therefore, many conversion

pathways covered under this fuel class are commonly considered Power-to-Liquid (PtL) pathways.

2.5 ICAO is constantly assessing new feedstocks for SAF production. Each of these feedstocks uses a particular production technology, with each specific technology pathway needing approval from the fuel standard body ASTM before being commercially deployed.

2.6 It is critical that policymakers set realistic SAF deployment goals that match the amount of fuel that could be made from available feedstock.

2.7 Vegetable oil is the most popular feedstock for biofuel in many countries like US, Malaysia, Indonesia who depend on soybean, rapeseed, sunflower and palm oil. At present, plant oils are being utilized as noticeable sources of feedstocks for biofuel in different countries. For instance, rapeseed and sunflower oils in Europe, soybean oil in the US, palm oil in Southeast, and coconut oil in the Philippines are noteworthy.

2.8 States variances in production of SAF are very expected. This is due to a range of factors such as regional availability of waste and biomass feedstocks resources, CO2 and cryogenic hydrogen, renewable energy, market dynamics and infrastructure.

2.9 Since the required amount of SAF production depends on the availability of feedstock in a State, it is necessary to ensure adequate supply of feedstock worldwide. Therefore, it is important to facilitate the proper distribution of feedstock to help the States facing shortage of feedstock. Moreover, if proper guidelines on production and collection of feedstocks are provided by ICAO to the producers or suppliers, it will help feed stock supplier or provider to improve the quality of feedstock. ICAO may provide adequate support to the States on formulation of policy level documents to meet the demand of future feedstock globally.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) Encourage States/Administrations to share their experiences of availability of feedstock compared to the present and future demand; and
- b) request ICAO to provide adequate support to the States on formulation of collaborative policy level documents to ensure availability of feedstock to meet the future demand globally.

— END —