



SAF in Emerging and Developing Economies: Opportunities for International Cooperation

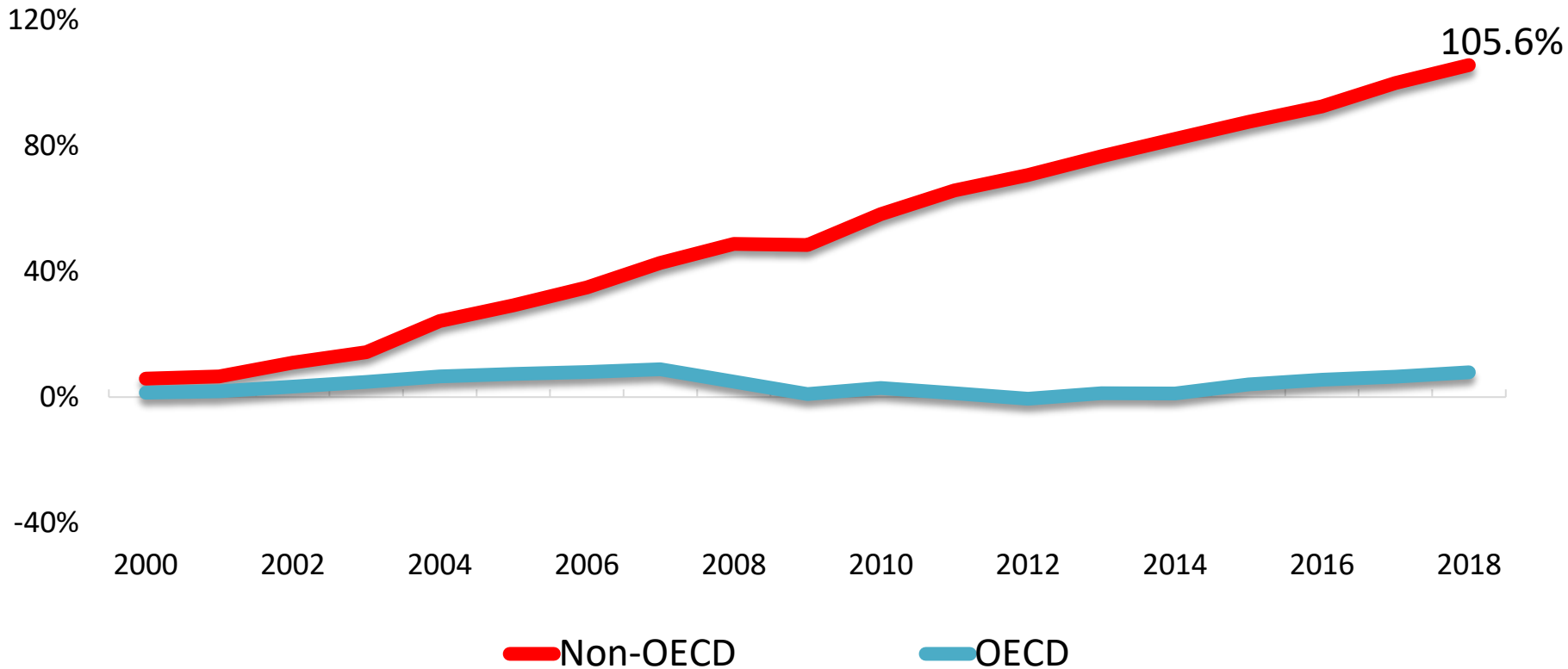


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Washington DC || October 5, 2023



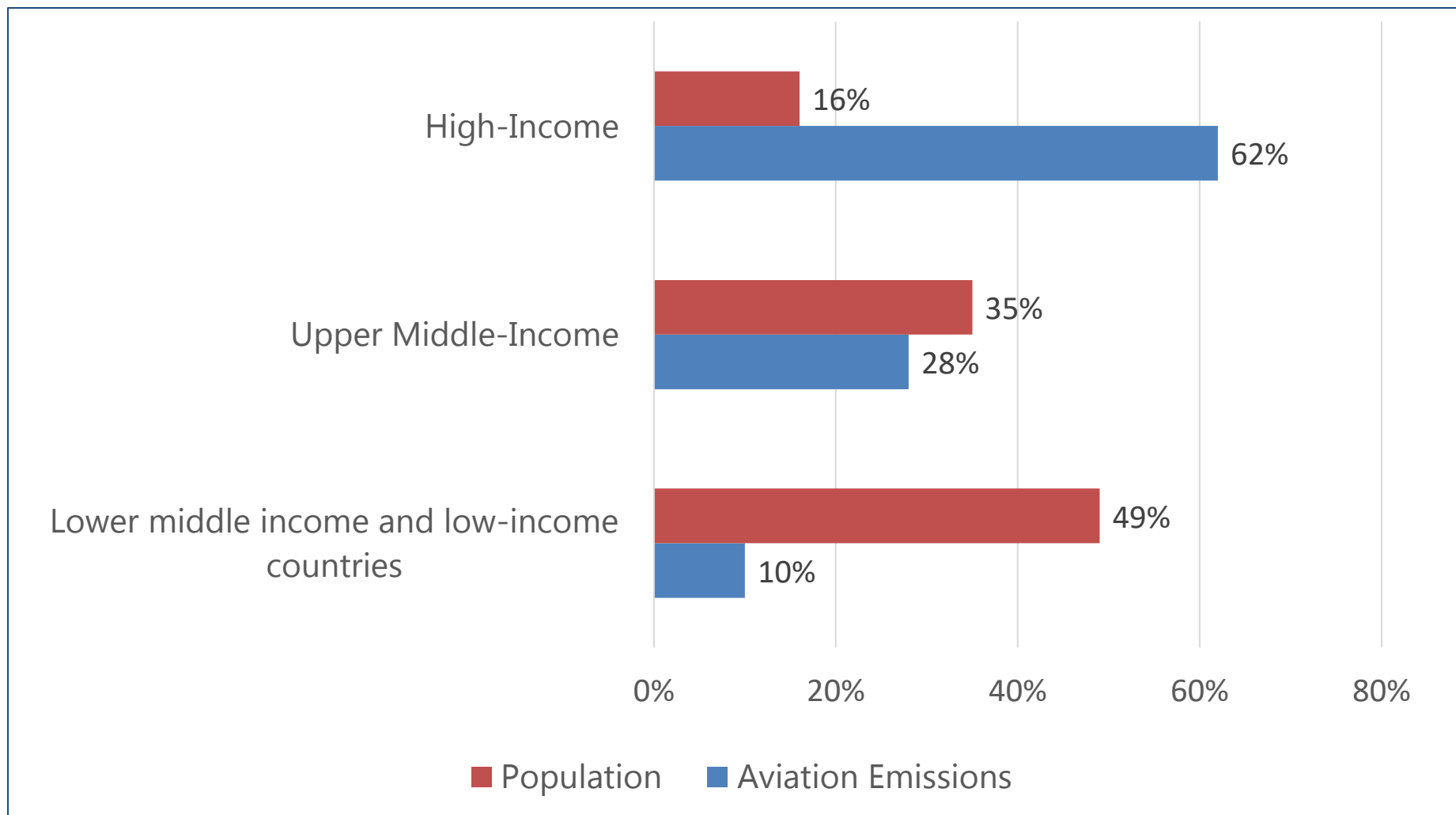
Since 2000, emissions from transport have increased by 120% with non-OECD countries driving the bulk of the increase

☑ Growth in transport GHGs 2000-2018



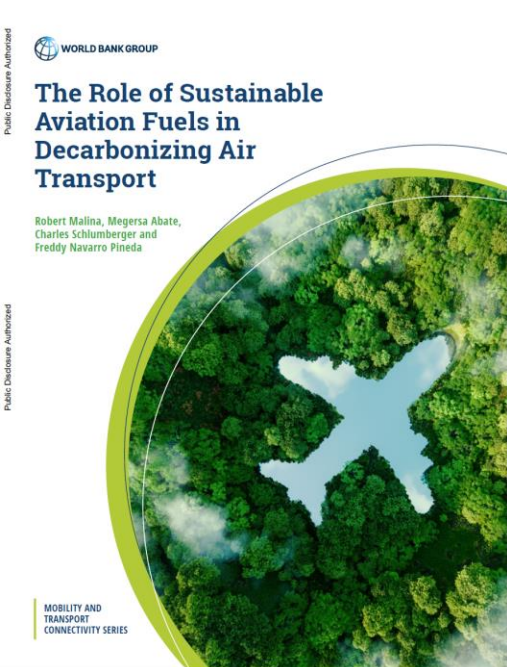
Emissions from Aviation is still Limited in Developing Countries

But it is Expected to Grow Quickly as the Demand for Aviation has a High-Income Elasticity



Source: Graver et al., 2019

World Bank Report: The Role of Sustainable Aviation Fuels



Key Messages

1. **SAF production can reduce up to 58% of aviation GHG emissions compared to business as usual in 2050** – this will require significant policy support, even more so in developing countries.
2. **Current SAF production plans are dominated by OECD locations**, developing countries are missing out on significant economic, environmental and social benefits of SAF production.
3. **Required investment for the scale-up of SAF is high, but comparable** to current and historical investments in other energy sectors.
4. **Developing countries risk “being left behind”, when it comes to access to SAF.** There is no systematic effort yet to explore and evaluate SAF potential in emerging countries, despite favorable feedstock endowment both in sustainable biomass and renewable resources and economic development co-benefits such as jobs creation and GDP growth.

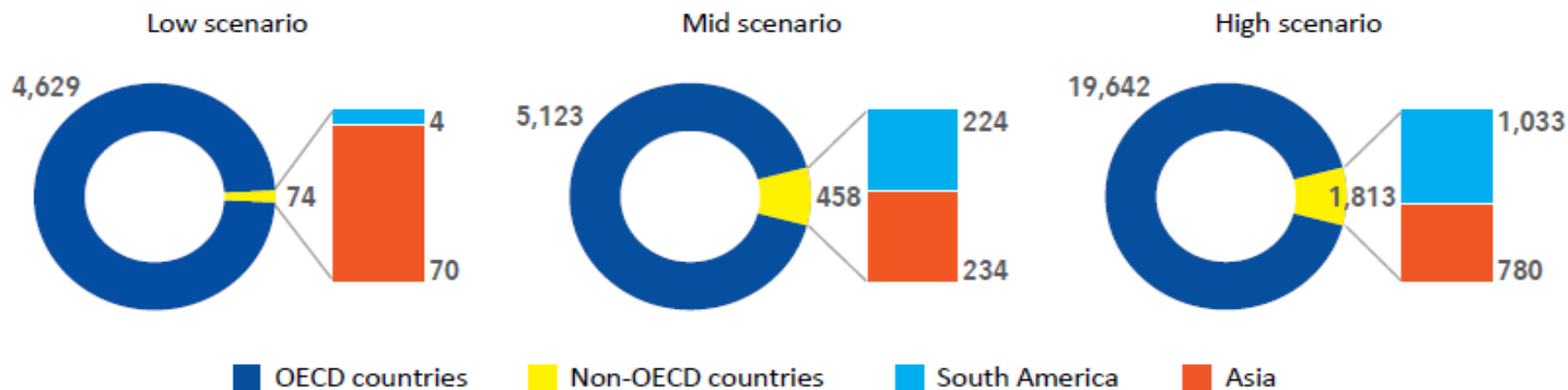
OECD countries dominate current & announced SAF production

Although non-OECD-countries account for 42% of jet fuel demand, globally

Developing countries are underrepresented in short-term SAF production plans... only 10% by 2025

Figure 3.3. SAF Production in 2025, by Scenario, OECD and Non-OECD Countries

Kilotons



Source: World Bank (2022)

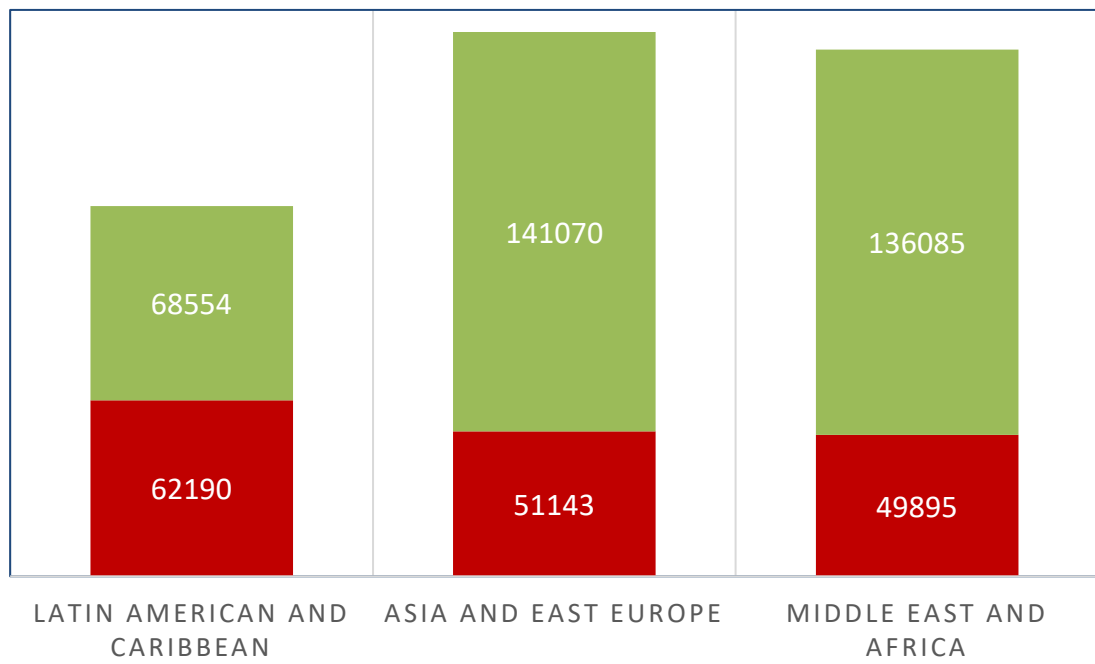
Significant potential for feedstock in non-OECD countries exists

Two-third of it doesn't compete with food sources

FEEDSTOCK AVAILABILITY BY REGION

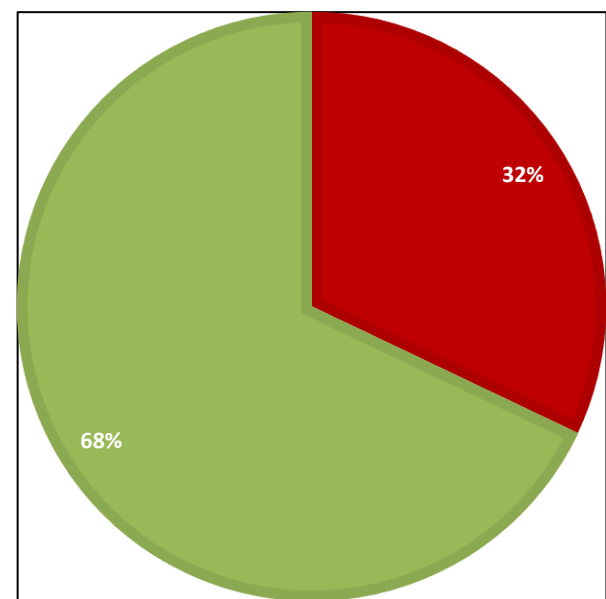
■ Food Crops ■ Non-Food

KILOTONS OF SUSTAINABLE AVIATION FUEL (SAF)



TOTAL NON-OECD

■ Food Crops ■ Non-Food



Source: World Bank (2022)

Note: Data derived from method published in Staples, Malina et al. Aviation CO₂ emissions reductions from the use of alternative jet fuels. Energy Policy. 2018 Mar 1;114:342-54.

Barriers for SAF Production in Developing Countries

Lack of policy support for SAF

CORSIA

Brazil

Indonesia

??

Lack of access to funding and financing

Lack of Bankable Project and Weak Demand

One 2000 bpd* MSW FT plant = 500 million USD = investment needs for Abidjan to Ouagadougou transport corridor, or the Ruzizi III Hydropower Project.

*bpd - barrels per da

Ongoing works on air transport decarbonization Activities

- 1. The WB is currently conducting deep-dives in select developing countries to see the feasibility of local SAF production:**
 - 1. Kenya** - a Techno-Economic Analysis for SAF production (a HEFA pathway)
 - 2. Colombia**- with a focus on exploring feasibility of palm oil based SAF and certification potential under CORSIA and EU RED
 3. There are also **early discussions** in **South Africa, Chile and India.**
- 2. We're also building a coalition across development partners including the US FAA, Boeing, GIZ, ICAO etc.**
- 3. The Bank is also developing an analytical report focusing on SAF investment decision and financing framework in developing countries.**

Financing Aviation Decarbonization

with a focus on SAF and World Bank client countries

Regional SAF Investment Financing Facility

