

INTRODUCTION & AIM

Aviation accounts for ~2–3% of global CO₂ emissions, with expectations of growth in air traffic. Sustainable Aviation Fuels (SAFs) are essential to decarbonize the sector. Brazil, a global leader in biofuels, has enormous potential to produce SAF, yet adoption remains incipient due to technological, economic, and regulatory barriers.



OBJECTIVE

To analyze the regulatory landscape, production potential, and key challenges for advancing SAF in Brazil and propose recommendations to accelerate its integration in the country's energy transition.

METHOD



Comprehensive review of national initiatives, policies, and regulations related to SAF in Brazil (2000–2024).



Analysis of technical reports, scientific publications, governmental databases, and industry reports.



Quantification of SAF production potential from sugarcane residues via the Alcohol-to-Jet (ATJ) pathway.



Evaluation of technological, economic, and regulatory barriers in comparison with international standards.

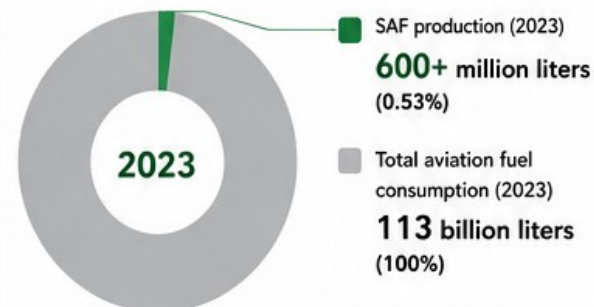


Assessment of key policies and stakeholder engagement for the SAF governance ecosystem.

RESULTS & DISCUSSION

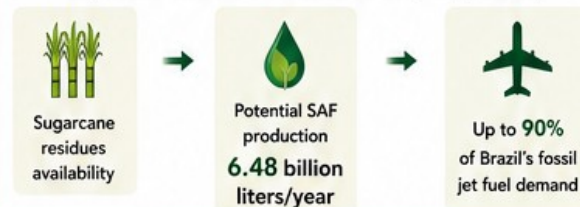
GLOBAL SAF PRODUCTION REMAINS INCIPIENT

SAF production vs. total aviation fuel consumption

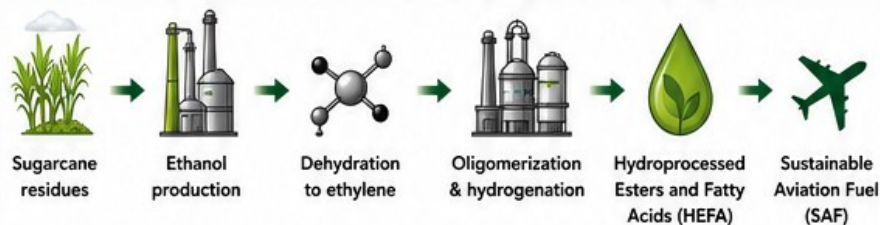


BRAZIL'S SAF PRODUCTION POTENTIAL

Sugarcane residues via Alcohol-to-Jet (ATJ) pathway

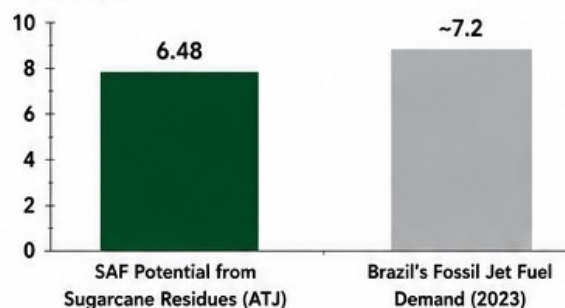


SAF PRODUCTION PATHWAY: ALCOHOL-TO-JET (ATJ)



BRAZIL'S SAF POTENTIAL COULD MEET MOST OF THE JET FUEL DEMAND

Billion liters/year



SAF potential could supply up to

90%

of Brazil's fossil jet fuel demand.

KEY CHALLENGES IN BRAZIL

Challenge		Key Findings
	Production Cost	SAF production costs are ~20% higher than conventional jet fuel.
	Regulatory Framework	ASTM D7566 currently allows a maximum 50% blend limit for most SAF pathways.
	Environmental Licensing	Complex and time-consuming processes create uncertainty and delay projects.
	Investment Barriers	High CAPEX, market risk, and limited offtake agreements hinder investments.
	Public-Private Collaboration	Need for stronger coordination and risk-sharing mechanisms.

KEY POLICIES SUPPORTING SAF DEVELOPMENT IN BRAZIL



PROGRAMA COMBUSTÍVEL DO FUTURO

- Establishes long-term targets for low-carbon fuels.
- Promotes integration across the biofuel value chain.
- Encourages innovation and industry competitiveness.



RENOVABIO

- Generates Decarbonization Credits (CBIOs).
- Creates market-based incentives for biofuel producers.
- Can support SAF pathways through policy expansion.