



SUSTAINABLE AVIATION FUEL - GS III MAINS

Q. Decarbonising the transport sector is crucial to achieve climate goals. In this regard, critically analyse the importance of sustainable aviation fuel (SAF) in India. (10 marks, 150 words)

News: *Airbus, CSIR-IIP to collaborate on sustainable aviation fuel*

What's in the news?

- Airbus and the CSIR-Indian Institute of Petroleum (CSIR-IIP) have signed an MoU to develop new technologies and to test and qualify indigenous sustainable aviation fuel (SAF) in the country.

Key takeaways:

- The collaboration will address the Indian aerospace industry's decarbonisation ambitions by supporting SAF production and commercialisation, using a new HEFA technology pathway and locally sourced feedstocks. The entities will jointly work on technical assessment, approvals, market access and sustainability accreditation efforts for the production of SAF.
- Recently, a commercial Boeing 787 made a London-New York flight using 100% sustainable aviation fuel (SAF).

Sustainable Aviation Fuel (SAF):

- Sustainable Aviation Fuel is produced by taking biomass such as used cooking oil, waste animal fat, manure and sewage, and broken or spoiled maize, foodgrains, rice and waste wood, and rendering these into synthetic jet fuel substitutes.

Significance of SAF:

1. Emission Reduction:

- About 65% SAF fuel-mix can meet the emission targets of 2050.

2. Reduce the Carbon Footprint of Aviation Industry:

- Currently, civil aviation contributes 10-12% of transport-related greenhouse gas emission.
- Across the entire supply chain of aircraft manufacture, the footprint is much more.

3. Negative Carbon Footprint:

- **Carbon Dioxide Capture:** Some SAF processes capture carbon dioxide from the air.
- **Utilises Methane:** Some versions of SAF reduce free methane (found in manure and sewage).

4. Compensate for Future Emissions:

- Widespread use of SAF would address the carbon impact of modifying or replacing jet engines of fleets.

5. Waste Recycling:

- It could also have other beneficial effects like waste recycling (biowaste).



Government Measures in Promoting SAF:

Government has approved the initial indicative blending percentages of SAF in Aviation Turbine Fuel (ATF):

- 1% SAF indicative blending target in 2027 (Initially for International flights).
- 2% SAF blending target in 2028 (Initially for International flights).

Global Measures:

CORSIA

(Carbon Offsetting and Reduction Scheme for International Aviation) Programme:

- It is the 1st global market-based measure for international aviation to offset CO2 emissions.

Issues in Adoption of SAF:

1. High Cost:

- It is at least three times as expensive as jet fuel and,

2. Low Adoption:

- At the moment, SAF contributes less than 1% to the aviation fuel mix.

WAY FORWARD:

- **Scaling up Production:** The technology and engineering challenges can be met if production is scaled up and engineering processes improve.
- **Policy Support:** It will be needed for research into better capture and collection of biomass and atmospheric carbon.
- **Subsidies:** Subsidies could also play a role in the early adoption of synthetic fuel.