ALIGHT
SUSTAINABLE AVIATION

The Sustainable Airports Platform is part of the ALIGHT project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 957824.

Contents

Introducing the Sustainable Airports Platform Toolkit

- Airports have a critical role to encourage the use of sustainable aviation fuel (SAF), but only a few airports currently have a consistent supply of SAF, and there is still uncertainty on the role airports should aspire to play within the SAF value chain.

- The toolkit captures the key information, guidance and tools that make up the Sustainable Airports Platform in one convenient place. These can be used to communicate your involvement in the platform to your own audiences.

- It has been developed for RSB members, ALIGHT programme partners and targeted external stakeholders based on structured discussions coming from the meetings and presentations we've held to date with the platform group.

Sustainable Airports Platform

2. What is SAP?

The Sustainable Airports Platform is an RSB initiative
that enables collaboration in developing and exchanging knowledge
on sustainability and the role of airports in the growing SAF economy

The platform hosts:

- Virtual meetings
- Expert presentations
- Online and offline discussions

With information and recommendations on:

SAF Sustainability and importance for airports (i.e. impact on local air pollution)

The role of airports in the SAF value chain

How to communicate SAF to airports' customers and travellers

Key outputs

1. SAF sustainability guidance for airports
2. Understanding airports' role in the SAF supply chain
3. Equipping airports to support the development of the SAF economy

The initiative is linked to ALIGHT, an EU-funded Smart Airport project led by Copenhagen Airport comprising 16 European partners, including RSB, developing best practice solutions for supply, integration and use of SAF and smart energy at airports.

SAP Sustainable Airports Platform

SAF value chain

BOEING
BASF The Chemical Company
Vitol
SkyNRG
CATHAY PACIFIC
ALDERFUELS
Decarbon
world energy
BOOM
Lufthansa
SINGAPORE AIRLINES
gevo
NESTE
sasol
steeper ENERGY
Shell

Airports

CPH
Schiphol Amsterdam Airport
CENTRALNY PORT KOMUNIKACYJNY
ADR Aeroporti di Roma
PARIS AÉROPORT
SEA Seattle-Tacoma International Airport
LITHUANIAN AIRPORTS VNO KUN PLQ
AVINOR
SFO San Francisco International Airport

Other

SINTEF
NISA Nordic Initiative for Sustainable Aviation
DLR
DANISH TECHNOLOGICAL INSTITUTE
WWF
RSB
IATA
IPIECA
UNIVERSITÀ DI PARMA
UHASSELT
IUSS Scuola Universitaria Superiore Pavia
BMGI Consulting

3. What is SAF?

What is SAF?

Sustainable aviation fuel (SAF)

Sometimes known as aviation biofuels or bio-jet fuels, SAF are low-carbon fuel alternatives for the aviation industry.

These non-petroleum-based drop-in aviation fuels are generally produced from bio-based feedstocks, including waste, residues and end-of-life products, or fossil waste such as CO, waste plastics and tyres.

SAF characteristics

- Non-petroleum-based
- Drop-in
- Low-carbon

SAF objectives

The use of SAF, as well as other efficiencies in operations and aircraft design, is intended to:

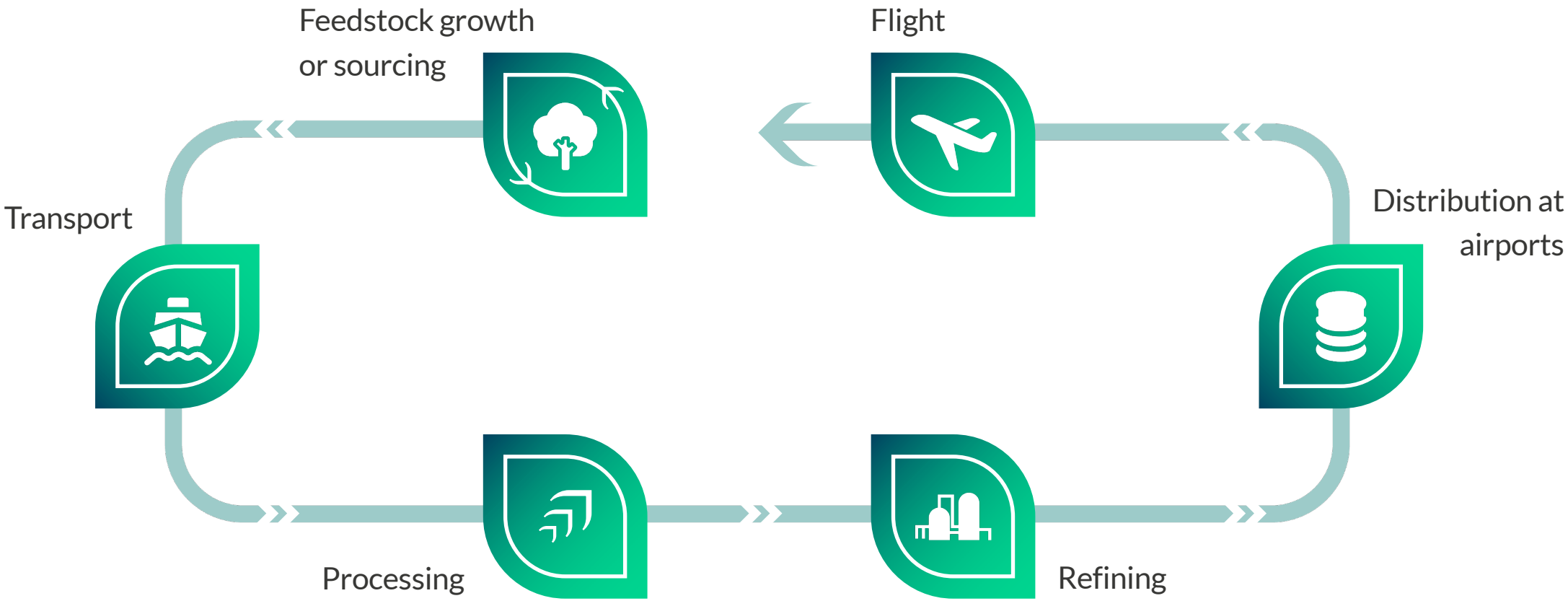
1. Reduce the industry's share of growing GHG emissions
2. Lower the aviation industry's overall climate impact

Requires robust sustainability certification

Some of these fuels risk negative social and environmental impacts – such as negligible GHG emissions reductions (or even increased emissions), reduced food security (from repurposing land from food to feedstock production), environmental degradation (deforestation), and unsustainable soil and water usage.

SAF

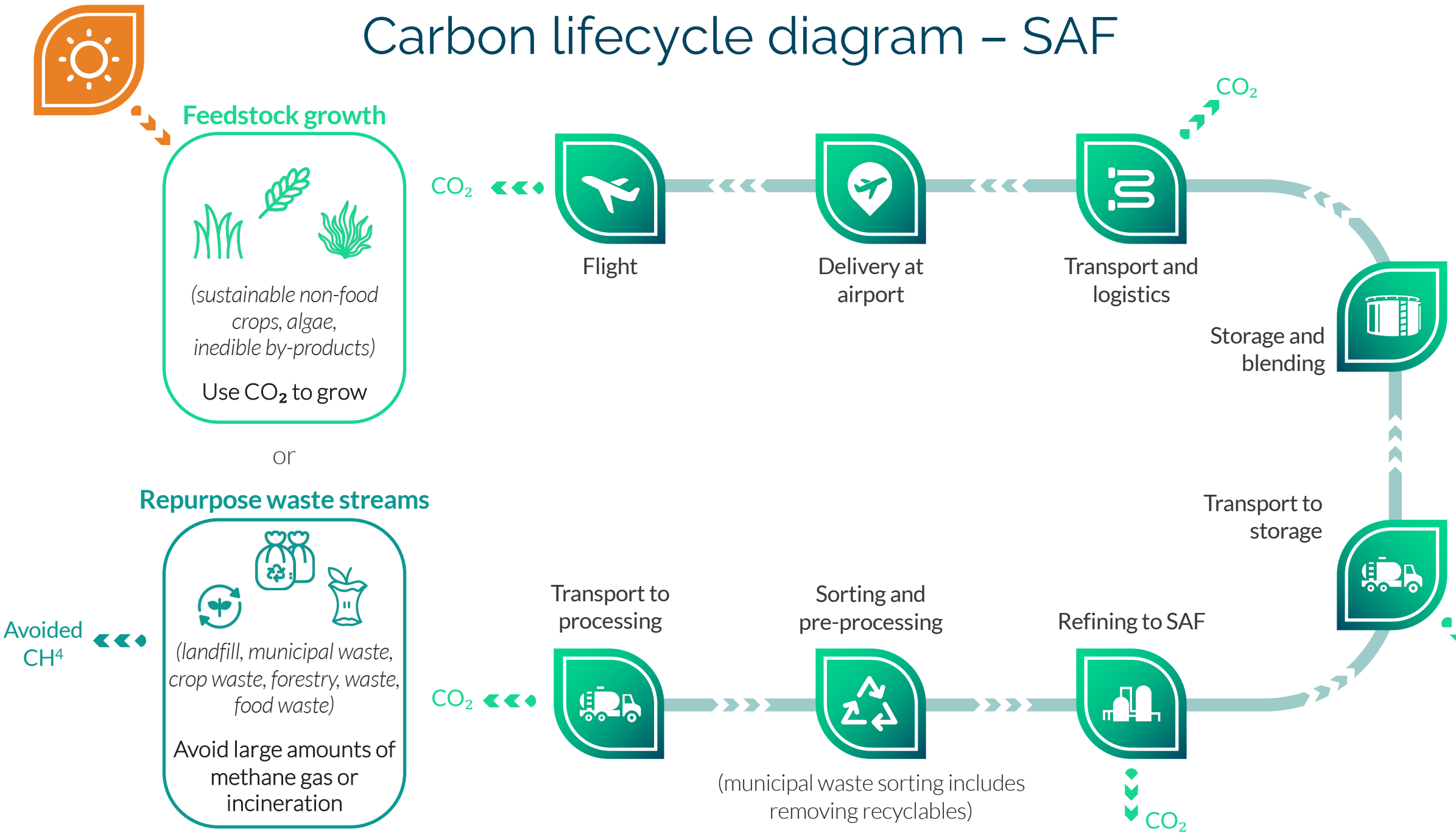
The renewable production of SAF



4. How is SAF made?

SAF can be made with a variety of technologies that use physical, biological and chemical reactions to break down biomass and waste resources, and recombine them into energy-dense hydrocarbons. Like conventional jet fuel, the blend of hydrocarbons in SAF must be tuned to achieve key properties needed to support safe, reliable aircraft operation.

Carbon lifecycle diagram – SAF



Approved ASTMSAF pathways

ASTM Approved process	**FT-SPK** Fischer-Tropsch hydro-processed synthesised paraffinic kerosene	**HEFA-SPK** Synthesised paraffinic kerosene produced from hydro-processed esters and fatty acids	**HFS-SIP** Synthesised isoparaffins produced from hydro-processed fermented sugars	**FT-SPK/A** Synthesised kerosene with aromatics derived by alkylation of light aromatics from non-petroleum sources	**ATJ-SPK** (isobutanol) Alcohol-to-jet synthetic paraffinic kerosene	**ATJ-SPK** (ethanol) Alcohol-to-jet synthetic paraffinic kerosene	**CHJ** Catalytic hydrothermolysis synthetic jet fuel	**HHC-SPK** High hydrogen content synthetic paraffinic kerosene
Date of approval	2009	2011	2014	2015	2016	2018	2020	2020
Feedstock options	Lignocellulosic biomass *Agricultural and forestry residues (e.g. sugarcane bagasse, sugar cane trash, treetops, corn stover, corn stalks) and municipal waste*	Oils and fats *Camelina, jatropha, castor oil, palm oil, animal fats, and used cooking oil*	Microbial conversion of sugars to hydrocarbon *Sugarcane, cassava, sorghum, and corn*	Lignocellulosic biomass *Agricultural and forestry residues (e.g. sugar cane bagasse, sugarcane trash, treetops, corn stover and corn stalks) and municipal waste*	Biomass used for sugar production and lignocellulosic biomass *Sugarcane, cassava, sorghum, corn, and ethanol*	Biomass used for sugar production and lignocellulosic biomass *Sugarcane, cassava, sorghum, corn, and ethanol*	Triglyceride-based feedstocks *Waste oils, algae, soybean, jatropha, cameilna, and carinata*	Biologically derived hydrocarbons *Algae*
Blending ratio by volume	Up to 50%	Up to 50%	Up to 10%	Up to 50%	Up to 50%	Up to 50%	Up to 50%	Up to 10%

5. SAF benefits

GHG benefits

GHG emissions reduced by up to 80% over the lifecycle of the fuel

Reduction in airport Scope 3 emissions

Non-CO_2 benefits

SAF has near-zero sulphur and aromatic components, which significantly decrease particulate emissions, with a positive impact on local air quality

Broader sustainability

If produced according to the right principles, SAF can have broader positive impacts on livelihoods, food security, conservation and more

Robust sustainability certification required to verify all SAF benefits

Non-CO_2 benefits example

A recent synthesis of 51 emissions measurement campaigns sponsored by the US National Academies of Sciences found that a 50% SAF blend with conventional jet fuel could reduce particulate emissions by up to 65% and oxides of sulphur by nearly 40%.

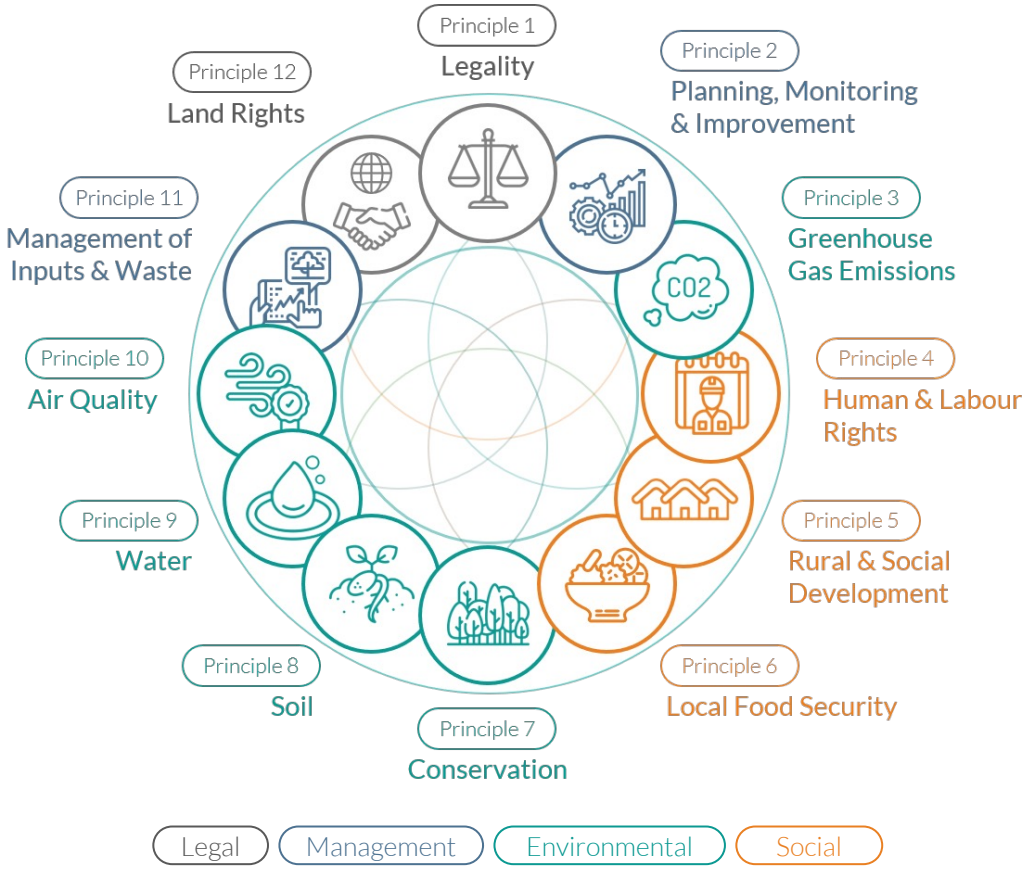
6. Is SAF sustainable?

Is SAF sustainable?

- Ensuring SAF sustainability is vital
- It requires that industry works with independent organisations to guide the development of SAF with positive climate, environmental and social outcomes.
- RSB's sustainability framework is globally recognised as most credible approach – having been developed by a multi-stakeholder community to address risks and enhance positive outcomes.
- RSB supports the development of SAF for the aviation industry that promotes social and environmental sustainability and safeguard food security.

RSB

Holistic approach supporting our ambition to create positive impact



7. Links to key outputs

Links to key outputs

SAF article

SAF factsheet for airports

SAF sustainability guidance for airports

8. Communicating your participation

Text to promote your participation

Showcase your leadership on SAF and participation in the Sustainable Airports Platform by including the following text (with logos) in your corporate sustainability reporting, investor materials and elsewhere.

SAP Sustainable Airports Platform

Paragraph #1

We are committed to advancing sustainability and decarbonisation across our operations, which is why we are proud to be members of the Sustainable Airports Platform to develop knowledge, research and recommendations to guide the role of airports in the sustainable aviation fuel (SAF) economy.

Thank you