



# *Accelerating SAF Development in Africa: Findings and Recommendations*

Online Webinar  
23 September 2026

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101122303.

# Agenda

| <i>Time</i>   | <i>Topic</i>                                                               | <i>Speaker</i>                   |
|---------------|----------------------------------------------------------------------------|----------------------------------|
| 14:00 – 14:10 | Welcome and introduction                                                   | Esther Hegel                     |
| 14:10 – 14:30 | Key findings from the final ICARUS deliverable “SAF Development in Africa” | Esther Hegel                     |
| 14:30 – 14:40 | Reflections from Expert Engagements: Turning recommendations into action   | Yitatek Yitbarek                 |
| 14:40 – 14:50 | Audience Q&A                                                               | -                                |
| 14:50 – 15:00 | Closing Remarks                                                            | Esther Hegel & Kyriakos Maniatis |

- This webinar is recorded and will be uploaded to the ICARUS website.



# Welcome & Introduction

Esther Hegel, RSB

ICARUS Project Partner



## Who We Are

RSB is a global, non-profit organisation that brings together industry, policymakers, researchers and civil society to advance a sustainable bioeconomy through robust sustainability standards, certification and collaborative action.



# The Why

## Current scenario

- 1 Negative environmental impact
  - Climate change
  - Unsustainable production practices
  - Increasing use of finite resources
- 2 Negative social impact
  - Unsustainable livelihoods
  - Food insecurity
  - Water insecurity
- 3 Extractive approach to resources
  - Exploitation of natural resources
  - Linear approach
  - Waste creation

## Ideal scenario



### Environmentally sustainable

- 1.5°C warming cap achieved and net zero emissions
- Sustainable approach
- Fossil fuels left in the ground



### Socially just

- Human & labour rights guaranteed
- Global nutrition assured
- Global water access assured



### Bio-based and circular resource use

- Productive ecosystems
- Maximum circularity
- Zero waste

# RSB's Work



## Book & Claim

### **Enabling credible and transparent sustainable fuel transactions.**

RSB's Book & Claim systems help connect sustainable fuel producers and buyers, supporting the scale-up of sustainable aviation fuel (SAF) and other sustainable products through robust sustainability assurance.



## Sustainable Transition and R&D Project

### **Driving innovation for long-term impact.**

RSB develops and participates in collaborative projects that address sustainability challenges, accelerate market transformation and advance new solutions for the bioeconomy.



## Certification and Standards

### **Setting the benchmark for credible sustainability.**

RSB develops robust standards and delivers internationally recognised certification systems that provide trusted sustainability assurance across global supply chains.



## Advisory Services

### **Providing expert guidance for sustainable transformation.**

RSB supports organisations, industries and value chains with practical sustainability expertise, helping turn commitments into measurable action.



## RSB Academy

### **Building sustainability knowledge and capacity.**

The RSB Academy delivers training and learning opportunities that help organisations understand, implement and advance best practices in sustainability.



## Community (Membership)

### **Bringing stakeholders together to create change.**

RSB's global membership community connects businesses, NGOs, policymakers and researchers to collaborate, share knowledge and shape the future of a sustainable bioeconomy.

# RSB's Work in Africa



## Feedstock assessment and SAF roadmaps

- Development of SAF roadmap in Ethiopia
- Contribution to the development of SAF blueprint in South Africa
- Pre-feasibility study on SAF feedstock (Brassica Carinata)
- Currently engaged in the development of SAF roadmap in Togo



## Studies on biofuels and Strategy development

- Study conducted with IIASA on the biofuel feedstock potential for SAF in Sub-Saharan Africa
- Revision of the biofuel strategy in Ethiopia
- Guidance to unlock the significant potential of invasive alien biomass to feed the biofuel and bioenergy markets in South Africa
- Engagement on the Africa circular bioeconomy discussion with regional partners



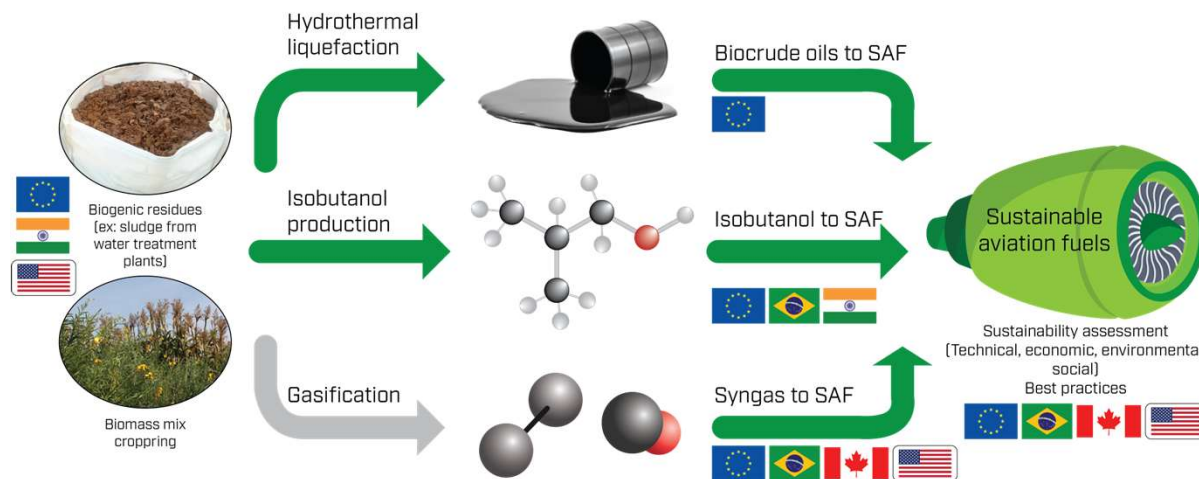
## SAF sustainability certification trainings

- Sustainability requirements and certification training at various regional workshops and training sessions
- Tailored training at the Ethiopian Aviation University on SAF
- Upcoming training on SAF on the pipeline



# ICARUS at a glance

Aims to develop future best practices and concepts along the entire value chain for the three technological pathways selected in Icarus for accelerating the scale-up of sustainable aviation biofuels production worldwide.

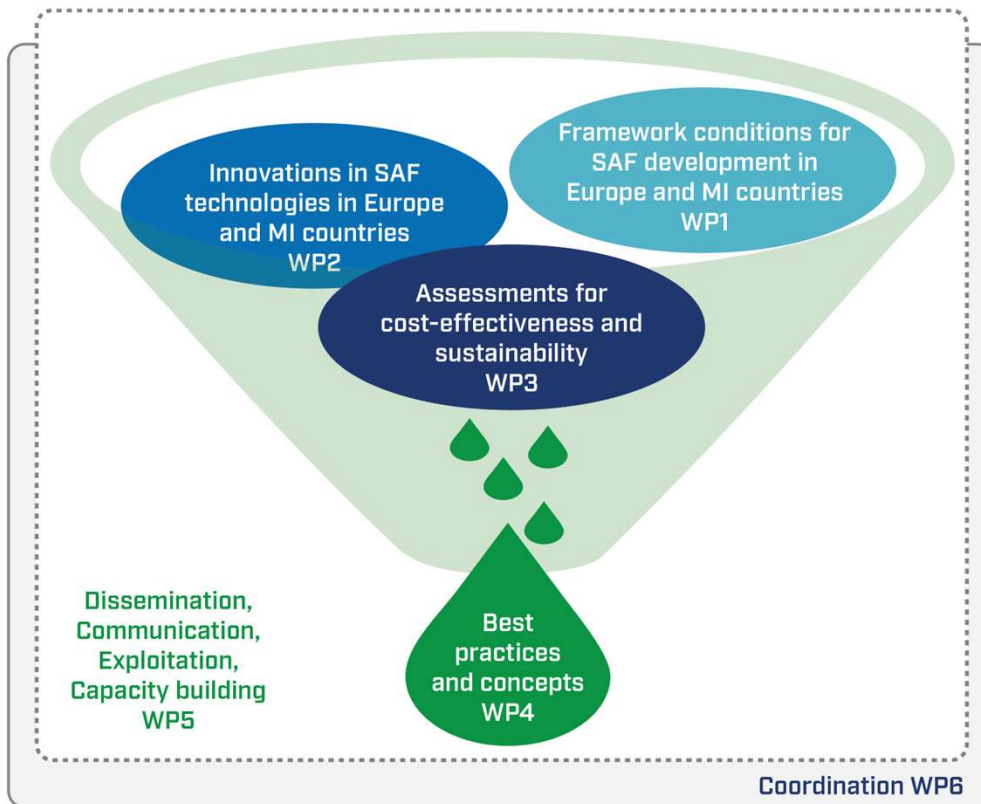


**EU funding programme**  
Horizon Europe  
**Type of action**  
RIA

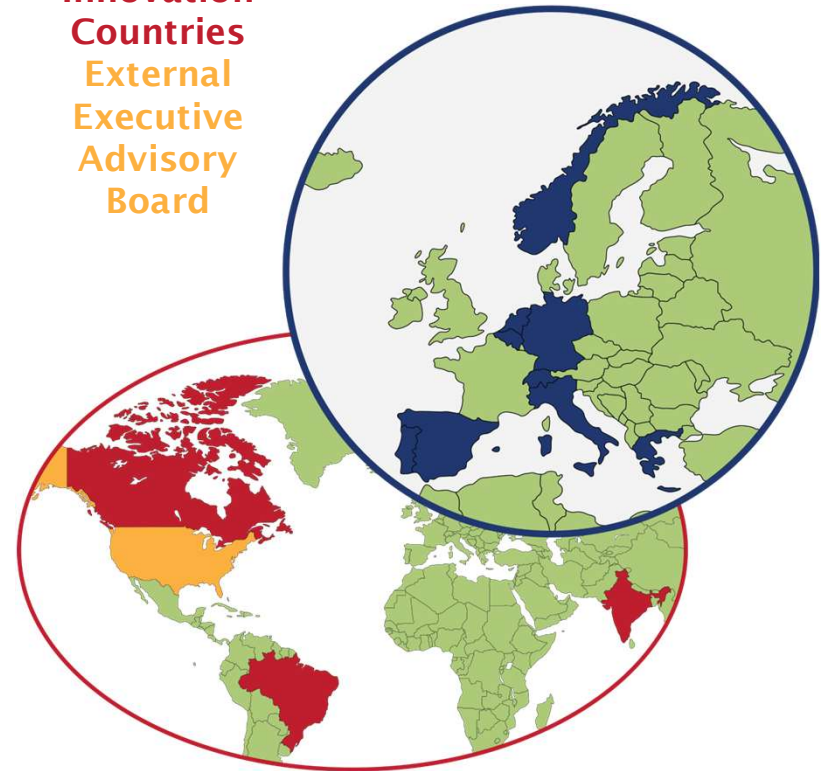
**Start**  
Oct-23  
**End**  
Oct-26

**Consortium**  
20 partners

# ICARUS at a glance



Europe  
Mission  
Innovation  
Countries  
External  
Executive  
Advisory  
Board

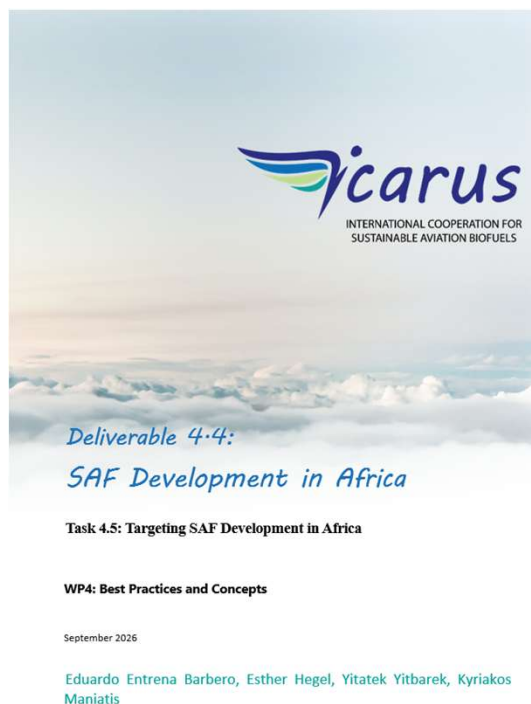


# ICARUS – Best Practices and Concepts

## Specific objectives

- To propose a set of **recommendations to accelerate the scaling up** of the three value chains
- Create strong **synergies** between the private **industry** and the **scientific community** by providing further guidance for **SAF certification** and coordinating the **engagement with oil industries, airports and end-users**
- Foster **international knowledge transfer** to establish long-lasting interactions on the upscaling of SAF, with special focus on the MIC and Africa

# Deliverable: SAF Development in Africa



## The journey

- **Drafted by the ICARUS Project Team**
- **Initial Webinar and Expert Presentations** on 09.09.2025, including Yitatek Yitbarek (RSB), Francis Mwangi (ICA), Robert Malina (Hasselt Univ.) and Farai Chirese (ICA)
- **Bilateral engagements** with RSB members & external stakeholders
- **Presentation and discussion** in May 2026 at the EUBCE 2026, The Hague
- **Expert reviews & discussion** of updated report in August 2026
- **Public Webinar with key findings** today, 23 September, 2 pm CEST
- **Final ICARUS Conference, Brussels** 25 September 2025
- **Finalisation and submission** by 30 September 2026
- **Publication of final deliverable** on ICARUS website around Q4 2026



INTERNATIONAL COOPERATION FOR  
SUSTAINABLE AVIATION BIOFUELS



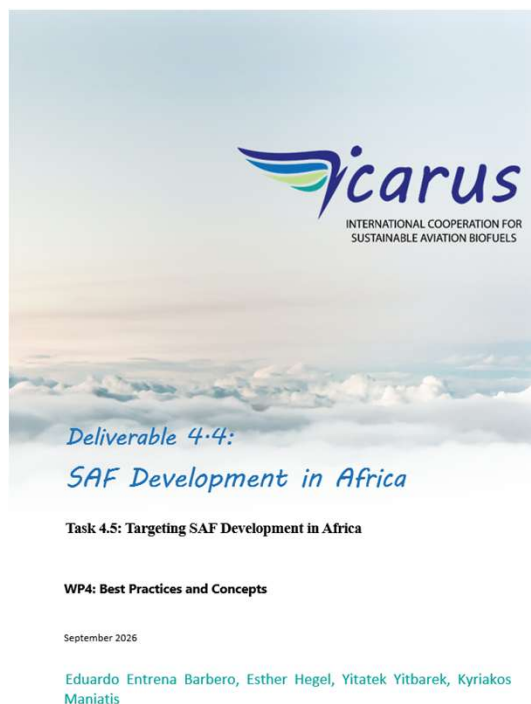
# Key findings from the final ICARUS deliverable “SAF Development in Africa”

Esther Hegel, RSB

ICARUS Project Partner



# Deliverable: SAF Development in Africa



## Goal

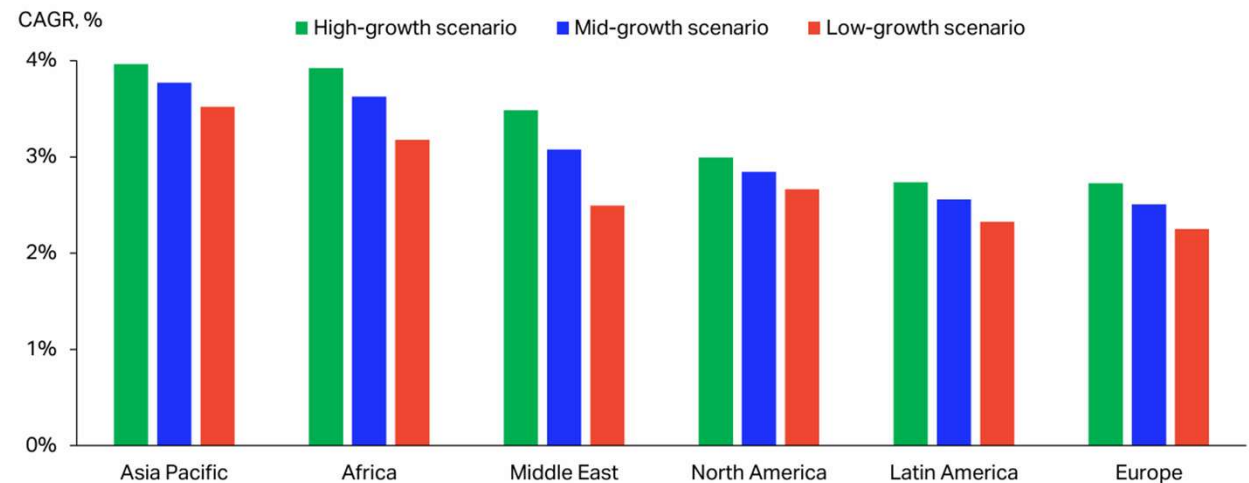
Provide a high-level overview of SAF readiness in Africa beyond feedstock potential, providing research, policy, and strategic discussions on SAF in non-EU contexts

## Contents

1. Africa's emerging role in a growing global aviation market
2. Analysing the status quo of SAF development in Africa
3. Findings and strategic discussion
4. Priorities and recommendations

## Africa's growing role in global aviation

- Africa is among the world's fastest growing aviation markets to 2050
- 3.6% annual growth; intra-African travel grows 4.9% (mid growth scenario)
- Yet Africa is only ~2% of global air traffic today
- Growth is both an economic opportunity and a climate challenge
- SAF delivers the largest share of aviation emissions reductions
- Africa can be both producer and beneficiary: biomass, renewables, industry
- International policy, investment and cooperation turn potential into projects

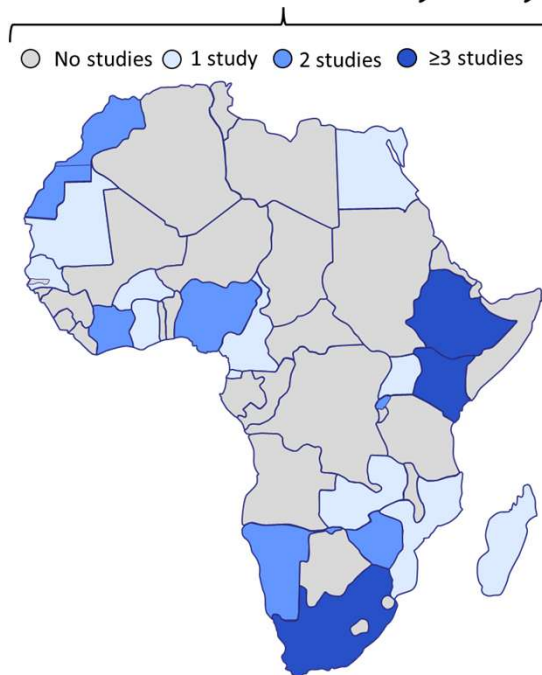


Source: IATA Sustainability and Economics

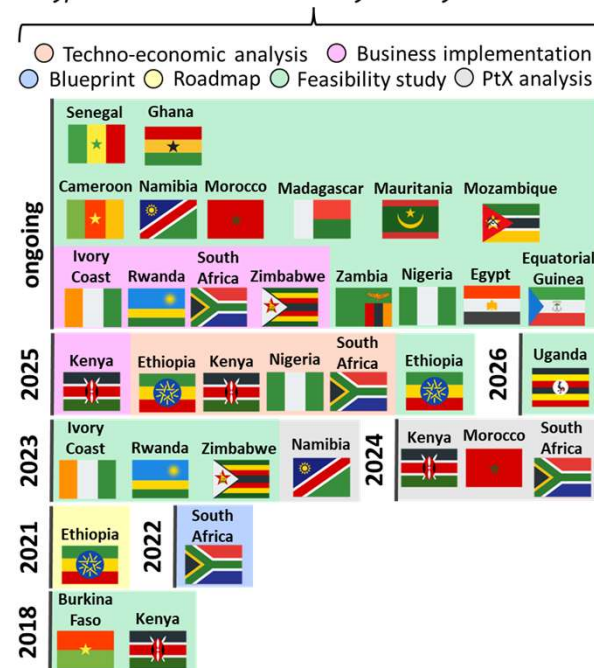
## A growing but uneven SAF knowledge base

- SAF assessments have expanded rapidly across Africa
- ICAO's ACT SAF programme catalysed many early studies
- Activity concentrates in East, Southern and parts of West Africa
- Coastal, port-connected countries feature most prominently
- Central Africa, landlocked and island states are less covered
- A fast-moving snapshot, not a definitive inventory

Number of SAF-related studies by country



Types of SAF-related studies by country in a timeline

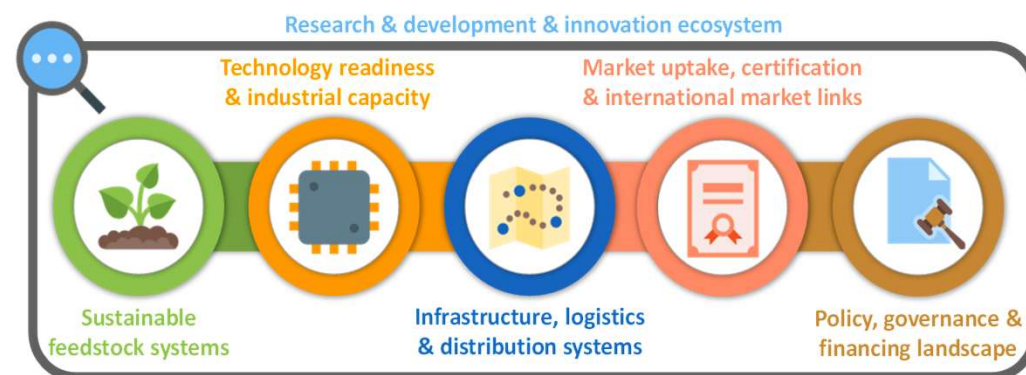


## Six building blocks determine SAF readiness

→ Readiness depends on an interconnected system, not feedstock alone

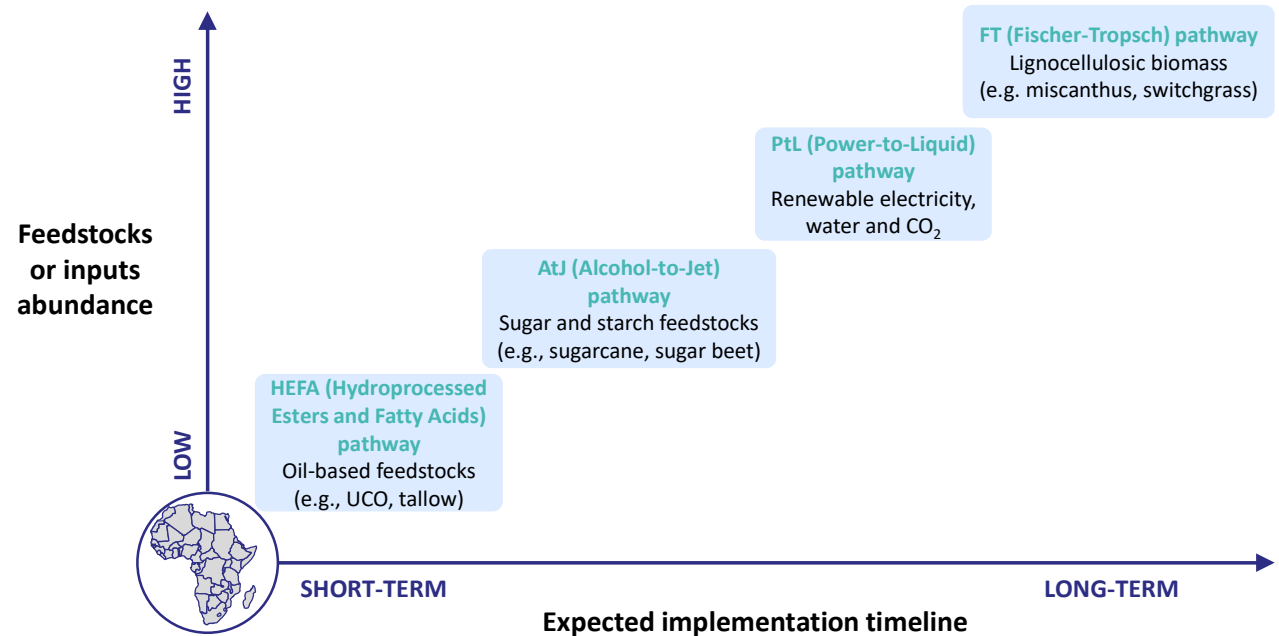
### Six building blocks:

- Sustainable feedstock systems
- Technology readiness and industrial capacity
- Infrastructure, logistics and distribution
- Market uptake, certification and international links
- Policy, governance and financing
- Research, development and innovation — cross cutting

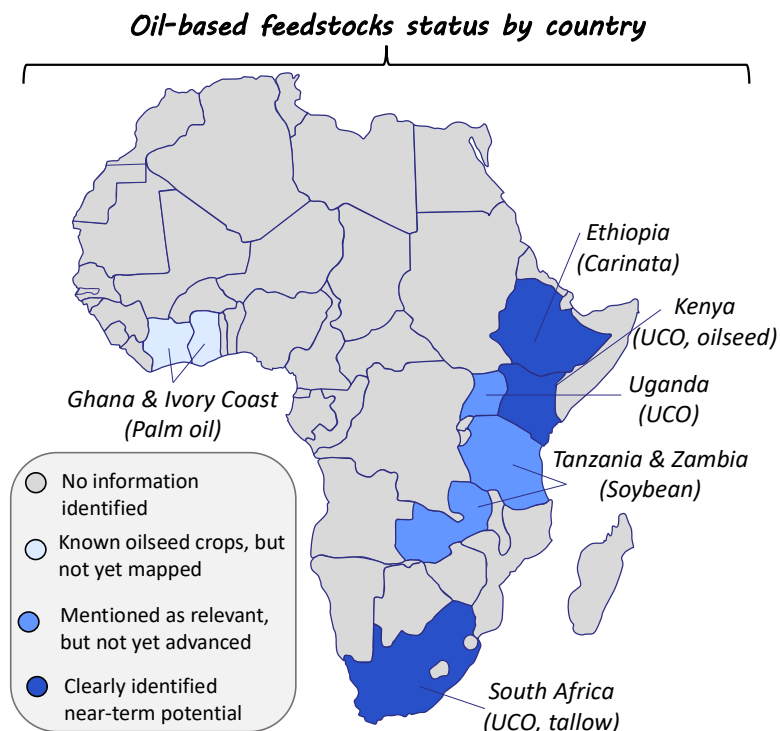


# Feedstock availability shapes different SAF timelines

- Pathways differ in resource availability and timing
- HEFA: most immediate, but limited oil-based volumes
- AtJ: where sugar and ethanol industries already exist
- Lignocellulosic: largest long term base, infrastructure heavy
- PtL: longer term, from renewable power, water and CO<sub>2</sub> ; many pilot project emerging across Africa
- No single pathway suits the whole continent

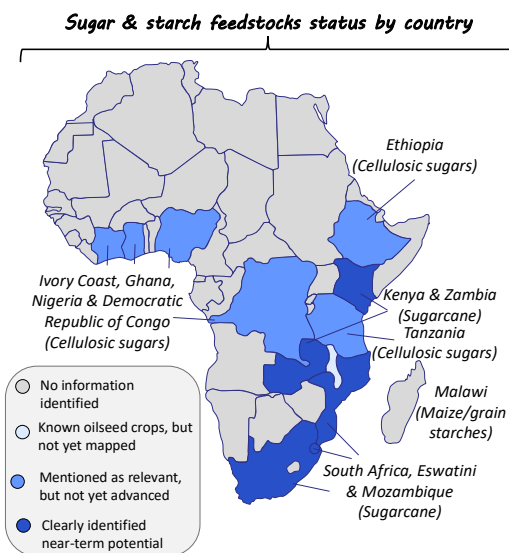


## Category 1: Oil based feedstocks offer near term entry points



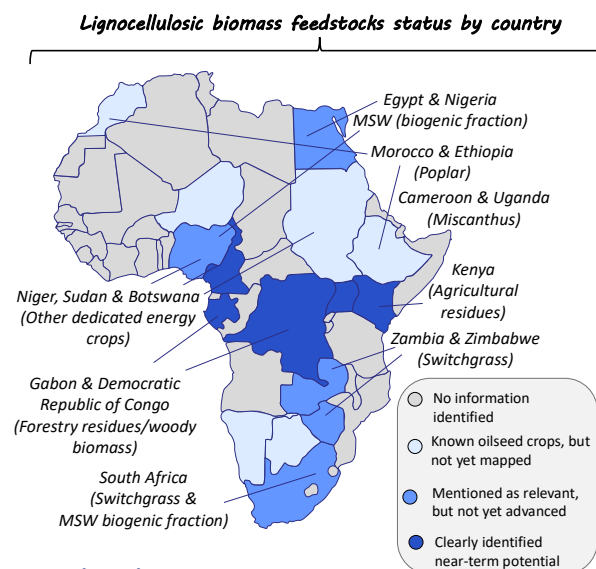
- UCO, tallow and oilseeds are the main HEFA feedstocks
- Strongest near-term potential: South Africa, Kenya, Ethiopia
- Tanzania, Zambia and Uganda show emerging relevance
- Castor oil promising, but scalability still to be validated
- Oil palm in Ghana and Côte d'Ivoire needs land use safeguards
- Deployment depends on logistics and traceability, not volumes alone

## Categories 2 and 3: Agro-industrial and long-term biomass opportunities



### Sugar and starch feedstocks

- AtJ is strongest where sugar mills and ethanol exist
- South Africa, Mozambique, Kenya, Zambia, Eswatini lead
- Cassava adds West African potential, with food-security care



### Lignocellulosic biomass

- Residues and perennial grasses: largest long term base
- Strong potential in Central, Eastern and Gulf of Guinea Africa
- Mozambique, Tanzania and Zambia gain from forestry growth
- Needs removal guidelines, aggregation hubs and logistics<sup>17</sup>

# Feedstock potential does not equal available SAF supply

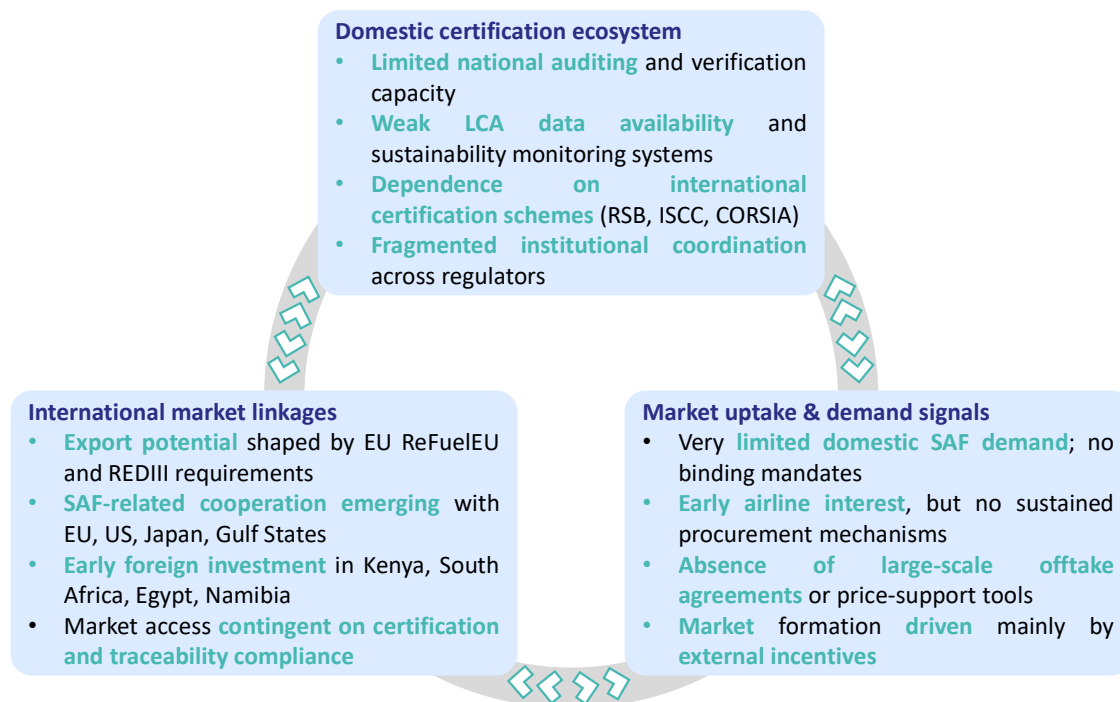
- Large potential, but only a fraction is mobilisable today
- Smallholder, dispersed and informal supply is hard to consolidate
- Storage, pretreatment and aggregation remain limited
- Competing uses — food, feed, soil, energy — must be respected
- Limited local LCA data and traceability constrain certification
- Feedstock hubs can link resources to viable projects

## Status Quo Insights: Feedstock Systems

1. **Africa shows high theoretical potential** across oil-based, sugar/starch and lignocellulosic feedstocks, with strong **regional variation** based on agroecological conditions.
2. **Rainfed production systems** and seasonal variability limit supply reliability in many regions.
3. **Residue and waste streams** (bagasse, crop residues, MSW, UCO) are widely present but **structurally underutilised** due to weak collection systems.
4. **Sustainability constraints** exist for several crops, including risks related to water scarcity, biodiversity, and LUC.
5. **Certification and traceability capacity** remain limited, constraining access to international SAF markets.
6. **Aggregation and logistics challenges**, especially in smallholder-dominated systems, are key barriers to mobilising feedstock at scale.

# Markets depend on certification and international linkages

- Certification, demand and market access reinforce each other
- National certification ecosystems are still nascent
- Domestic demand is low: no mandates, few offtakes
- Sequence policy so obligations do not outrun certified supply
- ReFuelEU Aviation is the clearest near-term demand signal
- Registries and book and claim can bridge producers and buyers



## Six cross cutting findings define Africa's SAF landscape

*Cross-cutting insights from the six building blocks of the SAF value chain*

### High potential, Low Mobilisation

Large feedstock and energy potential, but only a small share can currently be mobilised



### Uneven Readiness Across Countries

Capabilities differ widely; countries fall into distinct readiness profiles



### Infrastructure & Certification Bottlenecks

Storage, pre-treatment, blending and sustainability verification remain limited



### Markets Driven by External Demand

Little domestic SAF demand; early opportunities depend on EU/CORSIA markets



### Pathway Feasibility Varies Over Time

HEFA is near-term; AtJ medium-term; FT/PtL long-term, but capital-intensive



### Early but Fragmented R&D Activity

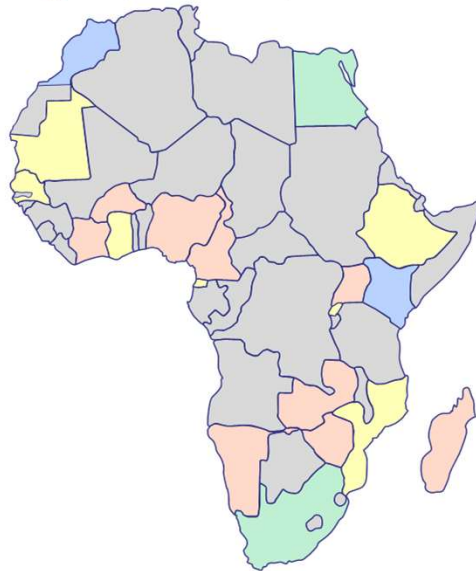
Growing research and pilots, but concentrated in few countries and not yet connected



# Four SAF readiness profiles emerge across Africa

SAF readiness profiles by country

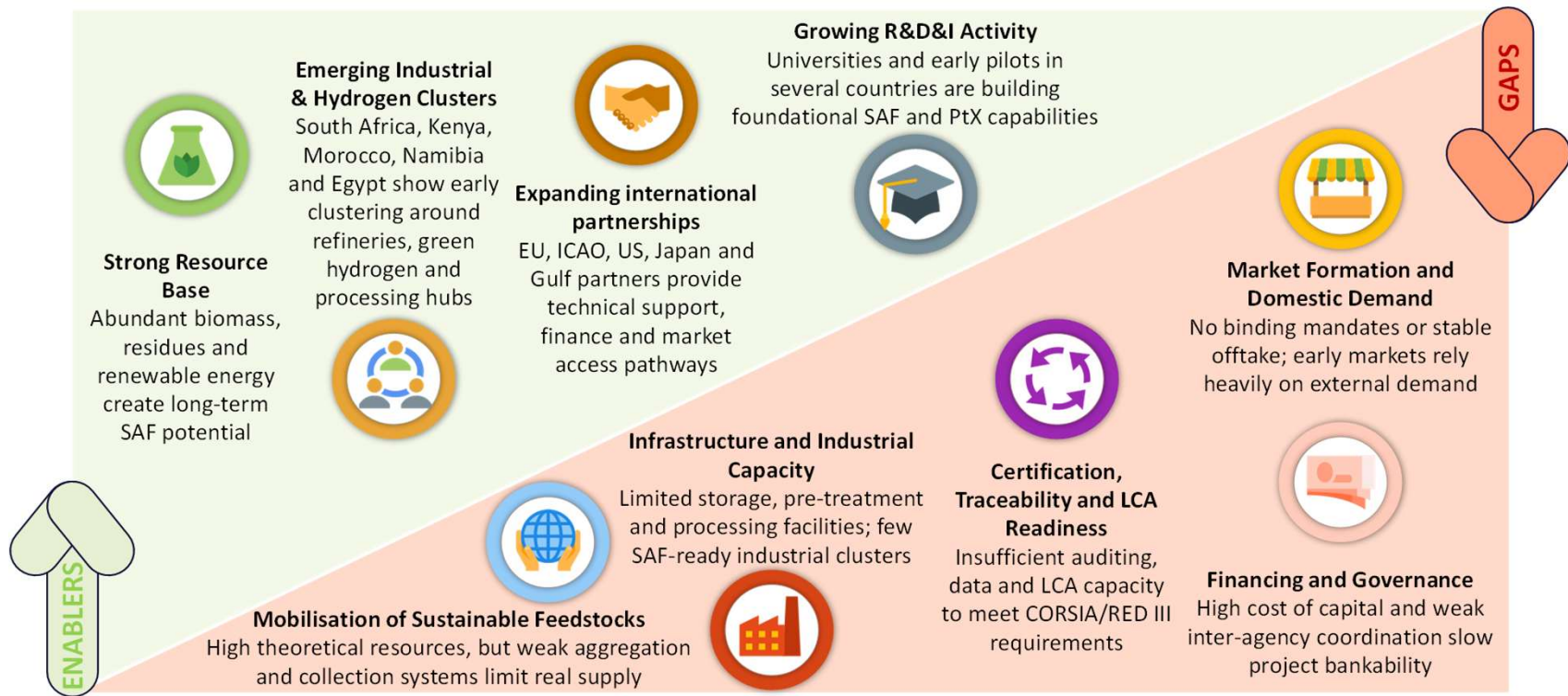
- No SAF-related studies to date
- Structural opportunity
- Export-oriented development
- Capital-enabled deployment
- Early industrial implementation



Country examples by readiness profiles

| Capability exists, but is inactive                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Nigeria</b><br><br>Active in SAF research, co-processing potential and hosting capacity-building workshops, but lacking concrete commercial-scale SAF facilities to date.                                                                      | <b>Cameroon</b><br><br>Identified in the continental SAF strategy pilot list; limited domestic conversion projects yet.                                                                  |
| <b>Zimbabwe</b><br><br><b>Ivory Coast</b><br><br>Included in SAF strategy plans but no major operational SAF projects reported.                              |                                                                                                                                                                                                                                                                             |
| Feedstock scaling, limited domestic processing                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                             |
| <b>Ethiopia</b><br><br>ATJ SAF from molasses and sugarcane is under development, and a large SAF facility investment was announced in 2025, but production is still emerging.                                                                     | <b>Ghana</b><br><br>SAF projects announced (e.g., SAF plant phases), but largely driven by international players and pilots rather than domestic manufacturing.                          |
| <b>Senegal</b><br><br>Involved in ACT-SAF, but with limited industrial deployment.                                                                                                                                                              | <b>Rwanda</b><br>                                                                                                                                                                        |
| Capital committed, projects emerging                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                             |
| <b>Kenya</b><br><br>Large-scale investments by development financiers like IFC and international partners building agri-hubs and processing capacity indicate concrete deployment readiness.                                                     | <b>Morocco</b><br><br>Government-led renewable energy and green hydrogen partnerships, including planned SAF plants and commercial SAF flights, signal serious capital-backed scale-up. |
| Industrial base and implementation underway                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                             |
| <b>South Africa</b><br><br>Expertise in FT and green hydrogen underpins e-SAF development, with projects like HyShiFT at SASOL Secunda aligned with the 2021 Hydrogen Society Roadmap targeting 10 GW electrolysis and 500 kt hydrogen by 2030. | <b>Egypt</b><br><br>Included in ICAO SAF capacity-building partnerships and pursuing biofuel strategic initiatives, with early industrial planning and feasibility work underway.      |

## System gaps and enablers must be addressed together



## Different starting points, a shared SAF destination



### What would unlock further progress?

#### Build the foundations

Strong resources, but limited SAF-specific capacity and project development. Coordinate institutions, secure feedstocks and assess projects.

#### Turn interest into projects

External demand drives feasibility work; domestic markets remain limited. Strengthen certification readiness and secure offtake.

#### Turn investment into delivery

External investment supports projects; enabling systems remain incomplete. Strengthen infrastructure, policy certainty and local supply chains.

#### Demonstrate and scale

Industrial capabilities support demonstration and early SAF deployment. Prove production, integrate clusters and secure market access.

Policy, finance, sustainable supply, skills and certification matter throughout; emphasis varies by profile and country context.

## Key messages for SAF development in Africa

1. Africa has strong long-term potential, but near-term progress depends on closing mobilisation and infrastructure gaps
2. SAF strategies should build on regional strengths, not a single pathway for all countries
3. HEFA and selected AtJ offer early entry points; FT and PtL need longer-term industrial development
4. Feedstock, sustainability, logistics, certification, LCA and MRV capacity are prerequisites for credible market access
5. Policies and market instruments must be sequenced with certified supply, and progress requires coordinated action across government, industry, finance, research and international partners



# Reflections from Expert Engagements: Turning recommendations into action

Yitatek Yitbarek (RSB Regional Consultant Africa)



# Reflections from Expert Engagements: Turning Recommendations into Action

Expert input helped test assumptions, strengthen the evidence base and reflect different African contexts.

## External Expert Engagement Process



### A broad range of perspectives

African and international expertise across policy, aviation, industry, research, certification and markets.

### Strong positive feedback

Experts highly valued the work, especially:

- Quality and structure
- Relevance and evidence
- Country differentiation

## Areas experts identified for strengthening

Apply the priorities more strategically by making them differentiated, practical, and aligned with African-led initiatives.

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### **Reflect differing country context starting points**

Tailor priorities to country readiness, available resources, pathway potential and existing capabilities.

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### **Strengthen regional approaches**

Build scale through shared infrastructure, feedstock aggregation, certification, market access and investment.

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### **Focus on practical opportunities**

Build confidence and capacity through near-term opportunities and early successes, while developing longer-term pathways.

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### **Connect the enabling conditions**

Coordinate policy, finance, capacity, certification, infrastructure, and market development.

## From recommendations to action

Translate continental priorities into targeted, collaborative and implementation-focused action.

**01**

### **Different starting points**

Tailor support to country readiness, pathway potential and local priorities. Identify practical early opportunities that can demonstrate progress.

**02**

### **Targeted and coordinated support**

Connect policymakers, industry, airlines, finance and technical partners.  
Invest in policy, capacity, certification, infrastructure and market systems.

**03**

### **Practical implementation and regional scale**

Build regional ecosystems and strengthen cooperation between countries.  
Continue expert engagement as initiatives and partnerships develop.

**No single pathway: build on regional strengths and turn credible opportunities into implementation.**



Q&A – 10 min



# Closing

Esther Hegel, RSB

ICARUS Project Partner



## Final ICARUS Events : Webinar on Sustainability Certification Next Week

💬 *ICARUS WEBINAR - SUSTAINABILITY CERTIFICATION FOR EMERGING SAF PATHWAYS - 30 SEPTEMBER 2026, 2:00 PM (REGISTRATION LINK)*



Wednesday, 30. September, 2:00 PM

**Sustainability Certification for Emerging SAF Pathways: Guidance, Opportunities and Lessons Learned**

- Key findings from ICARUS “Guidance on SAF Certification” for researchers and early-stage project developers
- Early sustainability considerations to support market access, compliance, investor confidence and environmental credibility
- RSB Preliminary Certification Framework: engaging with requirements during design and investment, before full certification
- Practical lessons from the SusAlgaeFuel certification journey with Darren Carty, Sustainable Flight Solutions, followed by audience Q&A

## Final ICARUS Events: Final Conference this Week in Brussels

🗨️ *ICARUS FINAL CONFERENCE IN BRUSSELS, 25 SEPTEMBER 2026 - REGISTRATION OPEN (REGISTRATION LINK)*



Date: 25 September 2026

Location: Comet Louise, Pl. Stephanie 20 in Brussels

ICARUS Final Conference

- **Join leading experts, policymakers and industry stakeholders** to explore the latest innovations in Sustainable Aviation Fuels (SAF)
- Learn how ICARUS is advancing the scale-up of three key SAF pathways: biocrude, isobutanol and biomass based Fischer-Tropsch fuels
- Gain insights into SAF sustainability, costs, environmental impacts, market developments and policy frameworks
- Hear perspectives from **industry leaders**, including CONCAWE, Airport Regions Council and Nufarm
- **Network with researchers**, innovators and decision makers shaping the future of sustainable aviation
- **25 September 2026 | Brussels & Online | Free registration available now**

# Join us at EUBCE 2027: Leading Bioeconomy Conference

**EUBCE 2027 | 35th European Biomass Conference and Exhibition**

Tue 25 - Fri 28 May Centres des Congrès de Reims, France.



## Why Join the EUBCE SAF Roundtable?

- **EUBCE is the world's largest biomass conference**, bringing together policymakers, investors, industry leaders and researchers from across the bioeconomy and sustainable fuels sectors.
- The **High Level SAF Roundtable** is a unique forum for global dialogue on SAF policy, investment, sustainability and market development, bringing together organisations such as IATA, IEA, the European Commission and leading industry players.
- The Roundtable has grown rapidly from **20 participants in 2024 to more than 120 in 2026**, reflecting its increasing importance as a global SAF platform.

## Why Africa Should Participate

- Showcase Africa's growing role and opportunities in sustainable aviation fuels.
- Engage directly with global decision makers, investors and technology providers.
- Help shape international SAF policies, sustainability frameworks and future market opportunities.

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## Thank you to our collaborators

### **ICARUS team**

For the successful collaboration over the past years, with special thanks to Kyriakos Maniatis.

### **RSB team**

For supporting this work, with special thanks to Eduardo Entrena and Yitatek Yitbarek.

### **External experts**

For sharing your expertise, contributing to discussions and providing valuable feedback.

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