Showcasing the Ethiopian SAF Roadmap:

Regional Workshop on climate change in the aviation sector for the African Region

14-16 June 2022 – Dakar, Senegal

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Outline

- About RSB
- Ethiopian SAF Roadmap Process
- Background –Ethiopia
- SAF roadmap
- Next Steps
- Q&A

ABOUT THE RSB

What we do

RSB

RSB's Vision

By 2050, industries across the globe have sustainably transitioned from being fossil-based to being bio-based & circular and having positive environmental and social impact.

CONVENING
Advancing innovation

IMPLEMENTATION
Guiding sustainability implementation

CERTIFICATION
Ensuring scale-up of positive Impacts

CORSIA

Foundational Framework

12 Sustainability Principles and Criteria

- Principle 1 *Legality*
- Principle 2 *Planning, Monitoring & Continuous Improvement*
- Principle 3 *Greenhouse Gas Emissions*
- Principle 4 *Human & Labour Rights*
- Principle 5 *Rural & Social Development*
- Principle 6 *Local Food Security*
- Principle 7 *Conservation*
- Principle 8 *Soil*
- Principle 9 *Water*
- Principle 10 *Air Quality*
- Principle 11 *Use of Technology Inputs & Management of Waste*
- Principle 12 *Land Rights*

RSB member platforms relevant to SAF

- SAF Policy Platform
- PtX working group
- Airports Platform

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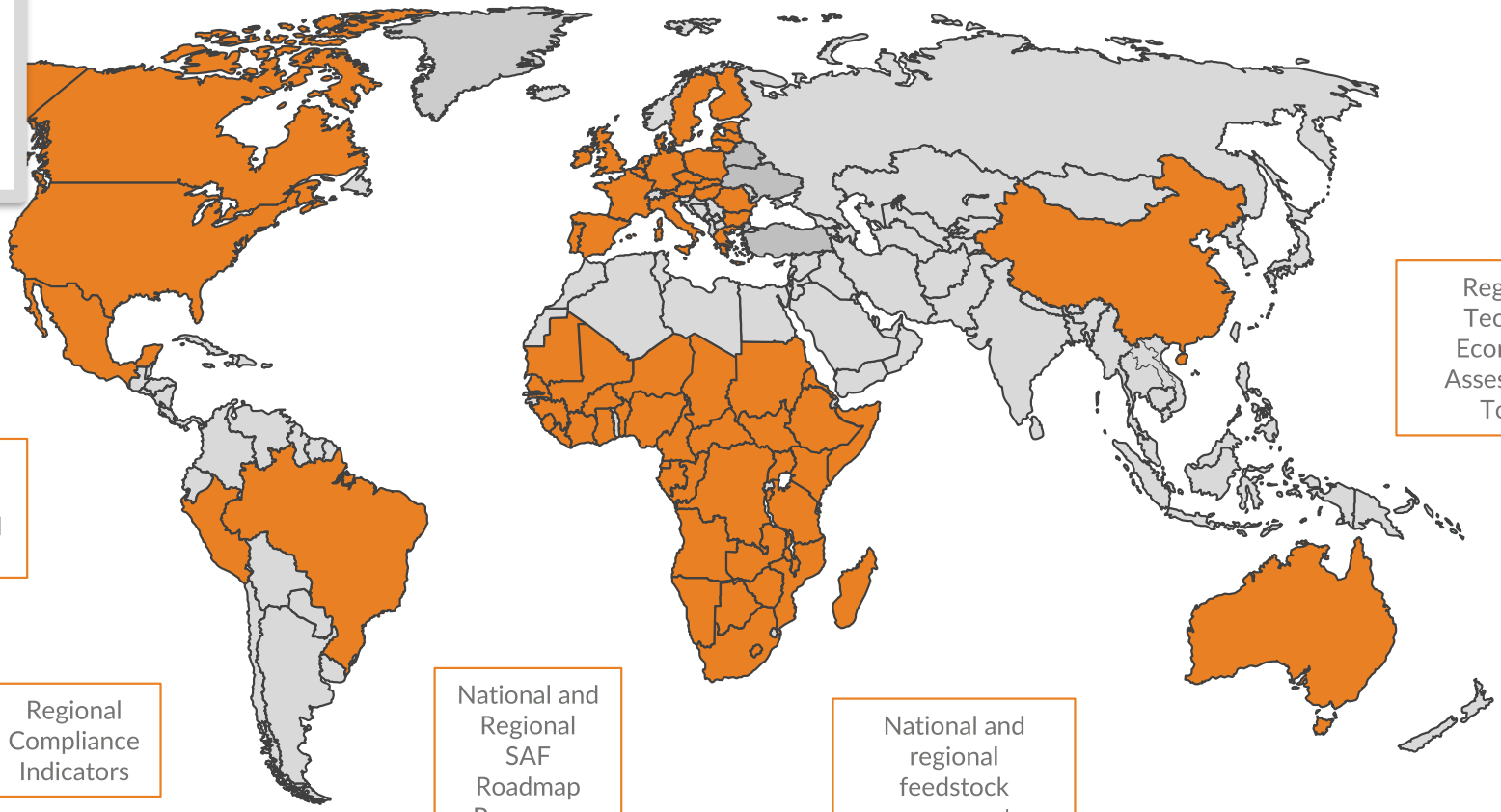
SAF SUSTAINABILITY

Snapshot of RSB Landscape Level Programmes



Integrating Sustainability into Global and National Aviation Policy

Regional Compliance Indicators

National and Regional SAF Roadmap Processes

National and regional feedstock assessments

Regional Techno-Economic Assessment Tools

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THE ETHIOPIAN SAF ROADMAP

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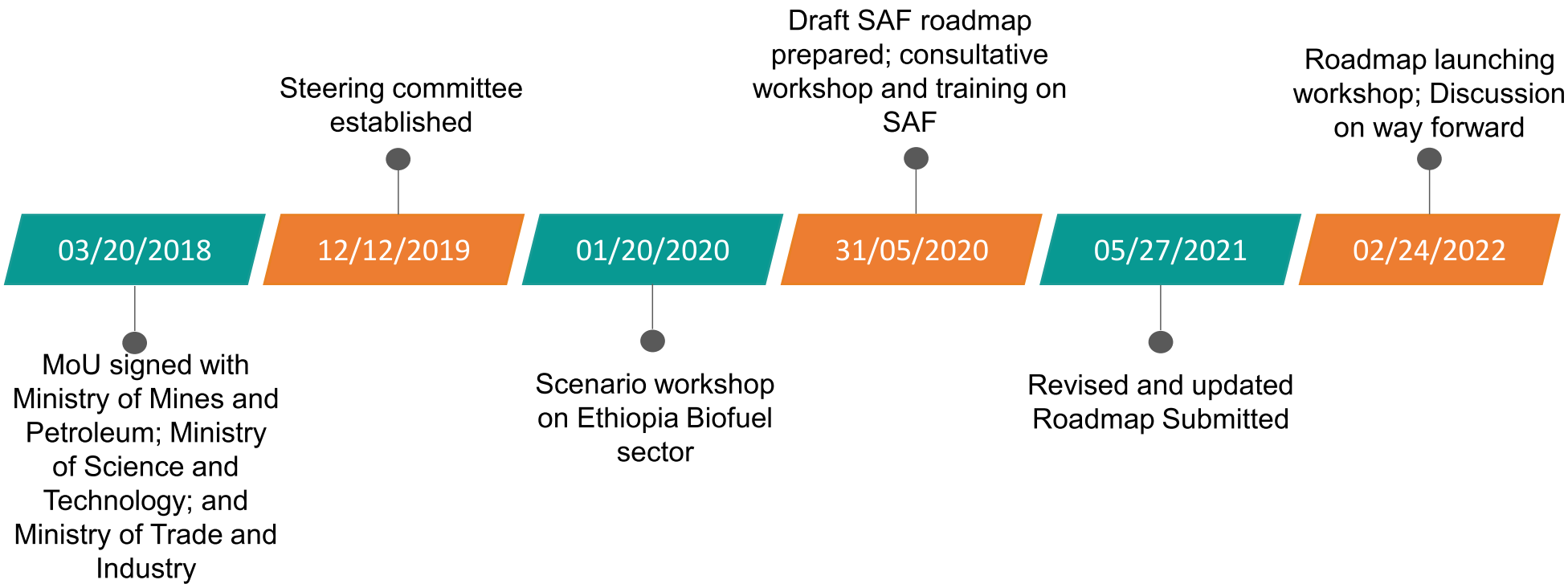
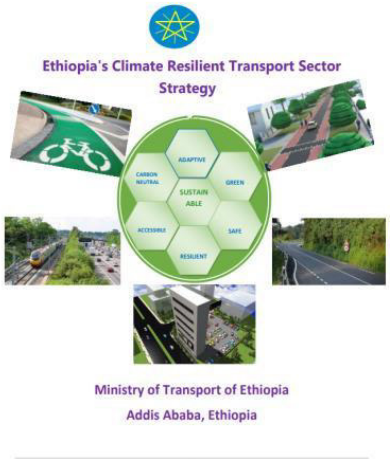
Ethiopia SAF Roadmap Process



Background - Ethiopia

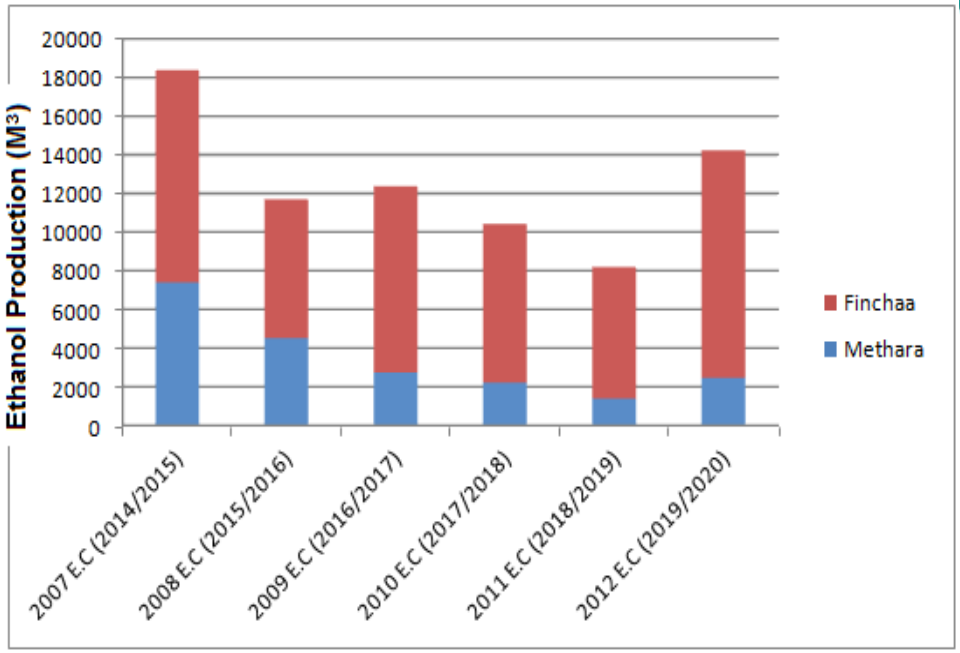
- This goal is reflected in the actions included in **Ethiopia's Ten Years Perspective Development Plan (2021 –2030)** (The Pathway to Prosperity), in the country's **CRGE strategy**, in the **Biofuels Strategy** and in **Ethiopia's Climate Resilient Transport Sector Strategy.**

- Ethiopia's total emissions are around 150 Mt CO2e (2019), out of which more than 85% of GHG emissions came from the agricultural and forestry sectors
- Ethiopia intends to transform its economy over the next ten years in order to limit its net greenhouse gas (GHG) emissions **in 2030 to 145 Mt CO2e or lower** (i.e., 64% reduction from the BAU scenario in 2030).



Biofuel Development in Ethiopia

- The biofuel sector is underdeveloped and only focuses on the production of bioethanol from molasses (sugar by-product)
- Two ethanol distilleries are operational (capacity: 32.5 Million liters per annum, which is less than the target)
- Only three biodiesel pilot plants exist in the country (Africa Power Initiative (API), Bati Woreda Biofuel Development and ATRIF Alternative Energy Plc.) – nominal total production capacity≈ 5000 lt/d



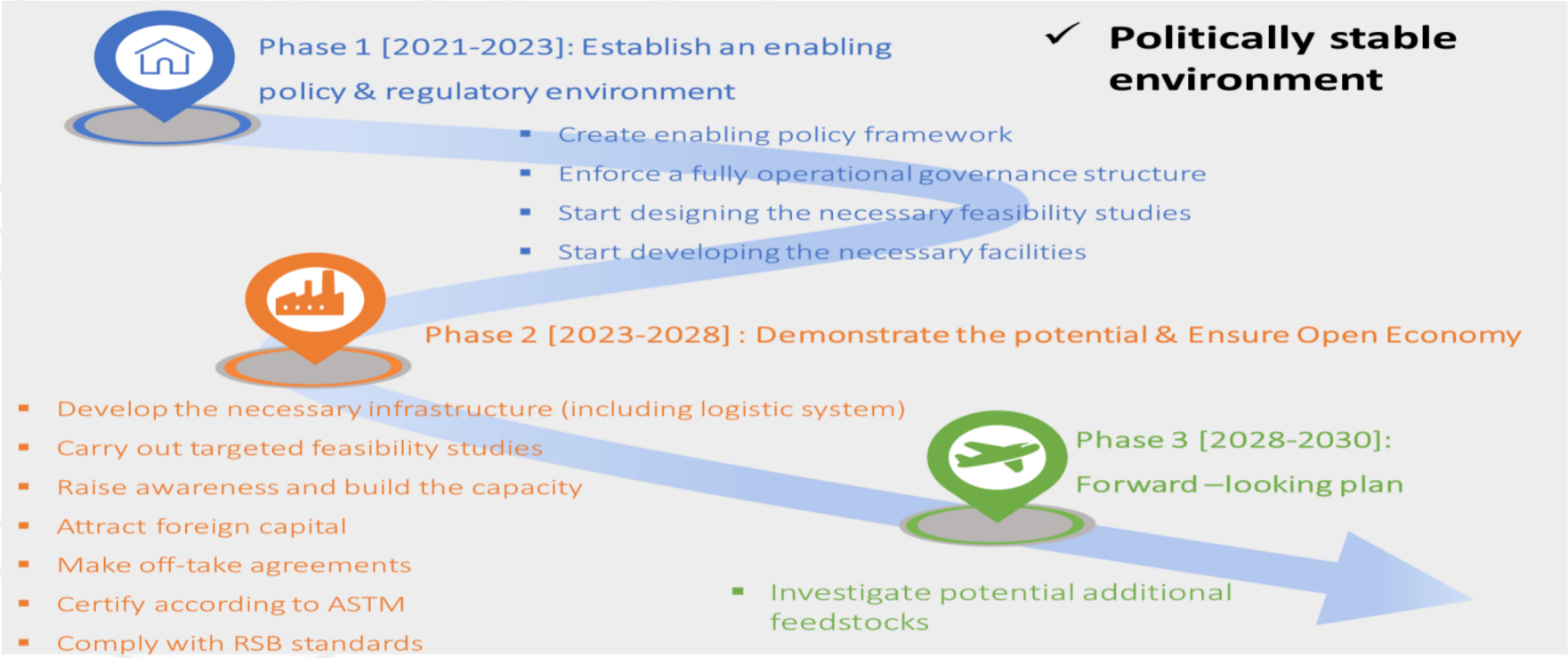
Identified Feedstocks

Feedstock	Advantage	Disadvantage	Required Conversion Technology
Sugarcane	Large scale plantations available	Needs irrigation and it is an intensive crop (requires mechanization for harvesting)	ATJ- SPK
Crop residue	**Abundant** across the country	Lack of necessary collection and logistic system	FT- SPK
Municipal Solid Waste	Contributes to **circular economy**	Variable supply	FT –SPK
Jatropha	Proven high yield oil production	Plantations cannot easily be mechanized	FT –SPK

Identified Feedstocks

Feedstock	Advantage	Disadvantage	Required Conversion Technology
Castor seed	Could be cultivated on marginal lands with relatively low water requirements High oil content	Growing global markets for use in industrial and pharmaceutical applications(competition)	HEFA-SPK
Carinata Brassica (Ethiopian Mustard)	Oil is efficiently converted into aviation fuel Tolerant to both heat and drought	Has similar ecology as bread wheat and barley	HEFA-SPK
Prosopis Juliflora	Harness economic benefits of invasive species management	Current use for firewood, charcoal and construction purposes	FT –SPK
Solaris (Tobacco)	Can participate in an integrated crop-livestock system& climate-smart agricultural production systems	Requires soils of high fertility that are prioritized for food production	HEFA-SPK

SAF Roadmap


Phase 1 [2021-2023]: Establish an enabling policy & regulatory environment
✓ Politically stable environment
Create enabling policy framework
Enforce a fully operational governance structure
Start designing the necessary feasibility studies
Start developing the necessary facilities
Phase 2 [2023-2028] : Demonstrate the potential & Ensure Open Economy
Develop the necessary infrastructure (including logistic system)
Carry out targeted feasibility studies
Raise awareness and build the capacity
Attract foreign capital
Make off-take agreements
Certify according to ASTM
Comply with RSB standards
Phase 3 [2028-2030]: Forward –looking plan
Investigate potential additional feedstocks

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Next Steps

- Implementation plan for the Roadmap
- Detailed feedstock feasibility assessments : Carinata Brassica(Ethiopia Mustard) Feasibility Study is underway
- Revision of the Biofuel Development Strategy

Thank you!

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