



Green Aviation  
Research & Development  
Network

Groupement Aéronautique  
de Recherche et Développement  
en eNvironnement

# SAF in Canada

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GARDN



FINANCIAL PARTNER



Government of Canada  
Networks of Centres  
of Excellence

Gouvernement du Canada  
Réseaux de centres  
d'excellence

**GARDN**



# GARDN / Business-led Network

## Our mission

GARDN is a non-profit organization funded by the Government of Canada and the Canadian aerospace industry.

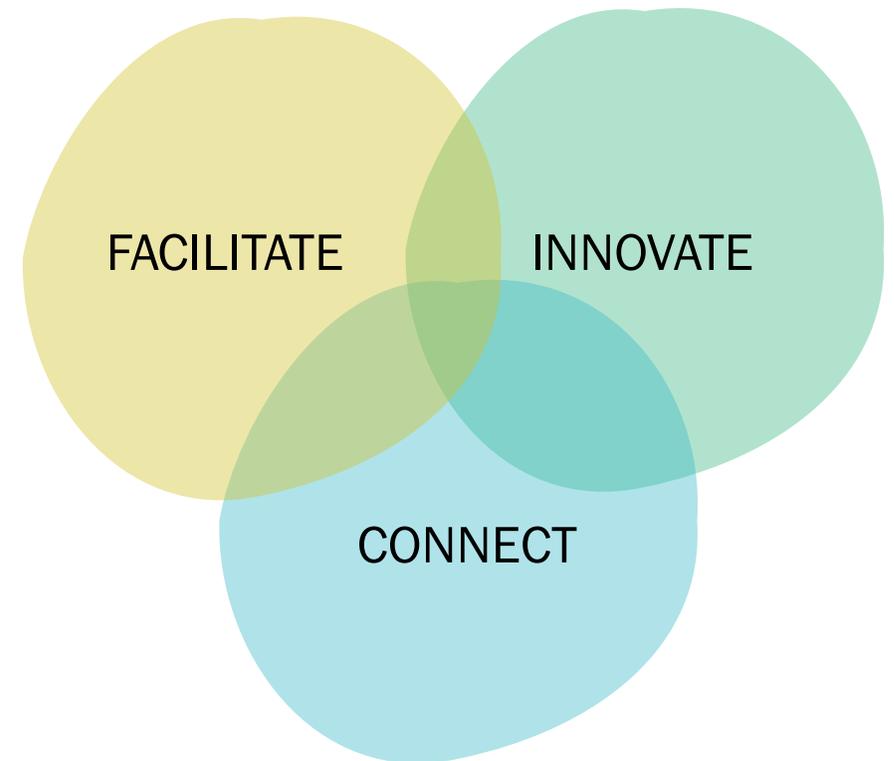
Foster the development of technologies for a **quiet, clean** and **sustainable** air travel to increase the competitiveness of the Canadian aviation industry by significantly reducing its environmental footprint.

### Key numbers (Since 2009)

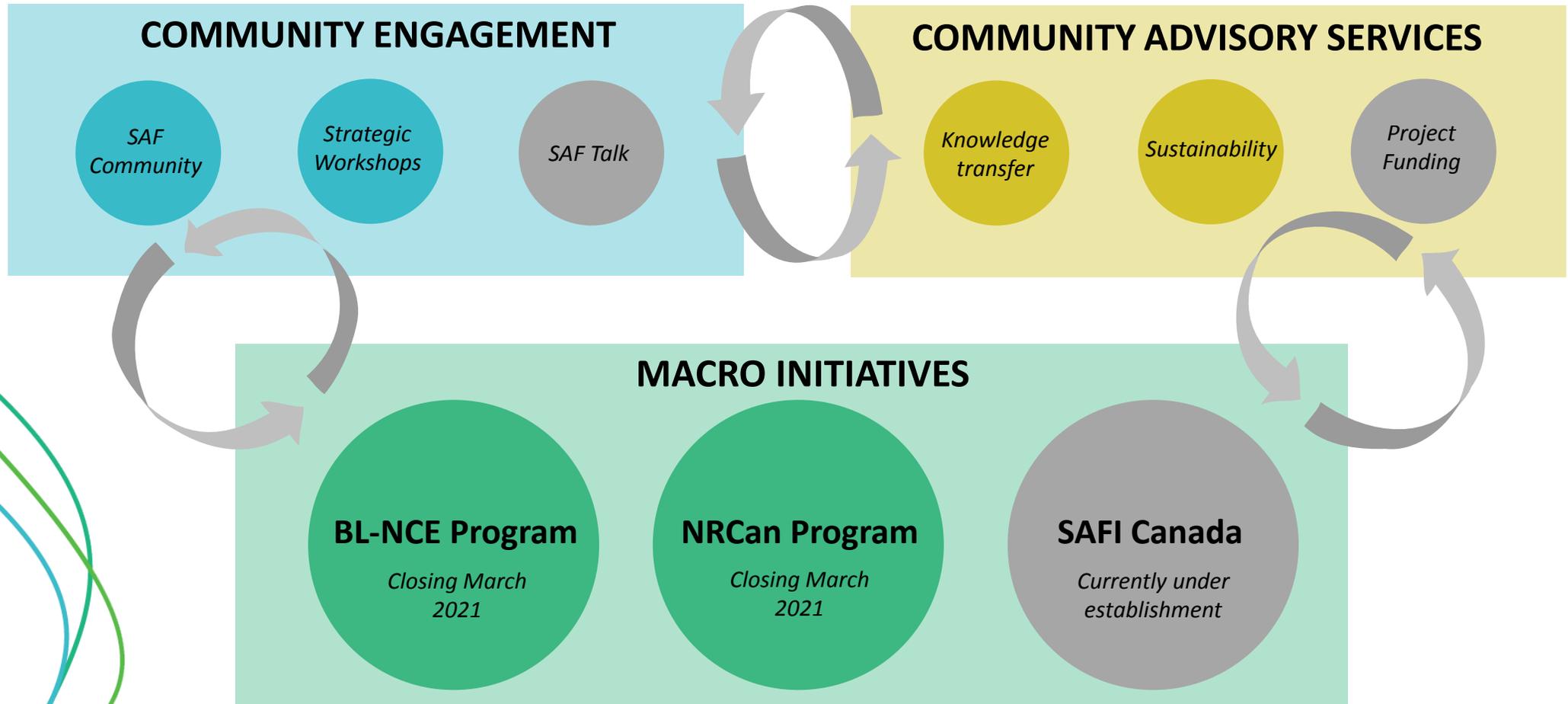
**64+** Members

**35** R&D projects

**70 M \$** + R&D budget



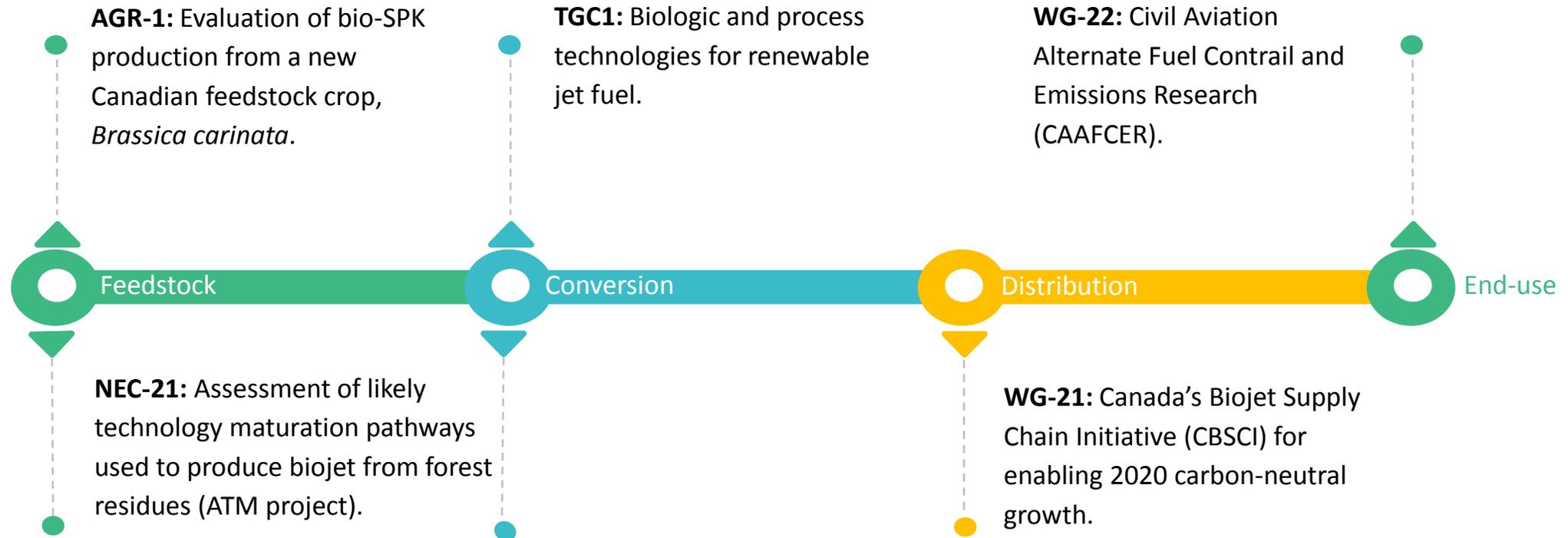
# GARDN activity portfolio



# An understanding of the Canada-based SAF initiatives



# GARDN R&D SAF projects



The world's first flight on 100% drop-in SAF

Canada's first SAF-powered revenue flight with 50% blend

First introduction of SAF in the hydrant system of an airport

# The Sky's the Limit Challenge

Seeking a Canadian breakthrough in green aviation fuels



Natural Resources Canada

Ressources naturelles Canada

Canada



Green Aviation Research & Development Network



AIR CANADA



WESTJET



## Consortia Building

## Consortia Put Plans Into Action

**Call for Proposals Opens for the Green Aviation Fuels Innovation Competition**

GoC signals intent to purchase SAF

August 2018

**SAF Innovation & Investment Forum**  
An event tailored to connect Canada's sustainable aviation fuels supply chain, including:

- Match-making for partners & investors (e.g., industry, P/Ts)
- Showcasing innovators
- Business & tech resources (e.g., federal labs)

November 2018

**Call Closes**

February 2019

**Consortia Funding**  
\$2M/18mths (each) x up to 4 teams

**Criteria:**

- Strong team & plan to win the Prize

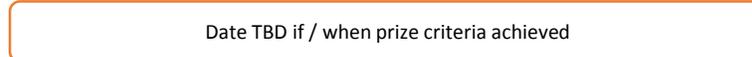
May 2019



**Cross-Canada Flight Competition - \$1M**

**Awarded at any time to first to achieve:**  
First use of Canadian-produced sustainable aviation fuel in a cross-Canada AC/WJ commercial flight (min. 10% blend, 2,500 litres)

Date TBD if / when prize criteria achieved



**Final Submission**

- Fuel sample to validate/test for quality (10 L)
- Production cost/GHG emission forecast
- Scale-up plan towards commercialization



November 2020

**Prize \$5M**

Will be awarded to the most economically and environmentally sustainable approach to scaling up SAF production in Canada.

Jury selects final winner  
Fuel tested (e.g., by NRC)

February 2021

Launch in Edmonton @ Alberta Aviation Museum



SAF Innovation and Investment Forum @ GARDN Conference



Consortia announced @ Mission Innovation 4 Vancouver, BC



Ongoing stakeholder engagement

- Follow teams (social media)



Submission Day (social media)

Final Award @ TBD



**Announcements & Communications**



People directory



Interest specific discussion groups



SAF news and events

# SAF Community Online Platform

[www.SAFCommunity.org](http://www.SAFCommunity.org)



Search for people



How it works

Live feed

Groups

Events

News

Companies

Media center

People

Forum

## Welcome to SAF Community!



Post

Trip

Event

To notify individual users, type '@' (ex: @Alex). To notify multiple users, click 'Notify people'.

Publish

Live feed

Filters: All items



SAF Community created an event

a day ago

Mar 5, 2019 · Webinar  
in 11 days

RSB x SAF Community: Embedding sustainability in SAF projects



Recently active members



E  
Program Co...



M  
Project Man...



A  
Project man...



S  
IT and Busin...



O  
CEO



K  
Director Stra...



M  
Analyst - Ae...



F  
Director Car...



Company database



Forum



Information sharing made easy!

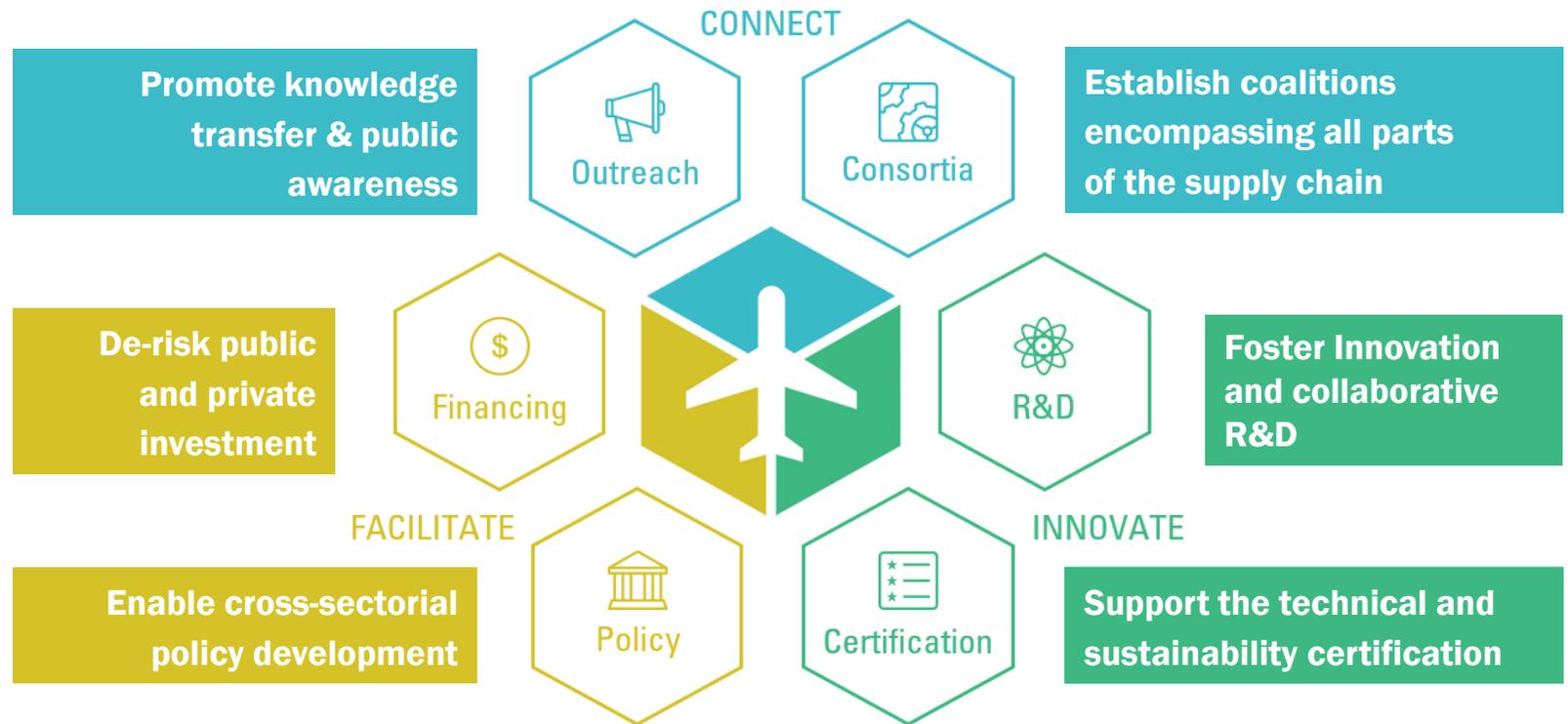
# SAFI Canada

Towards the collaborative approach to decarbonize air travel



**Sustainable  
Aviation Fuels:  
A Canadian  
Perspective**

2019



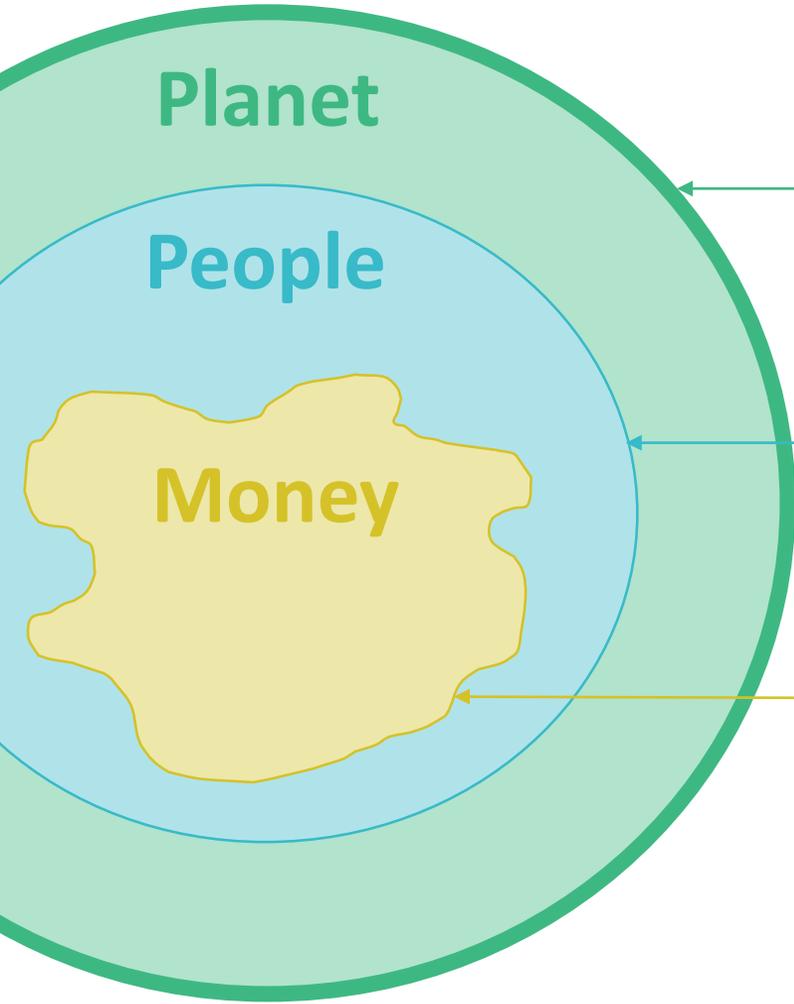
# Managing a SAF initiative and governance structure



**S**SUSTAINABLE ...

**A**VIATION customer

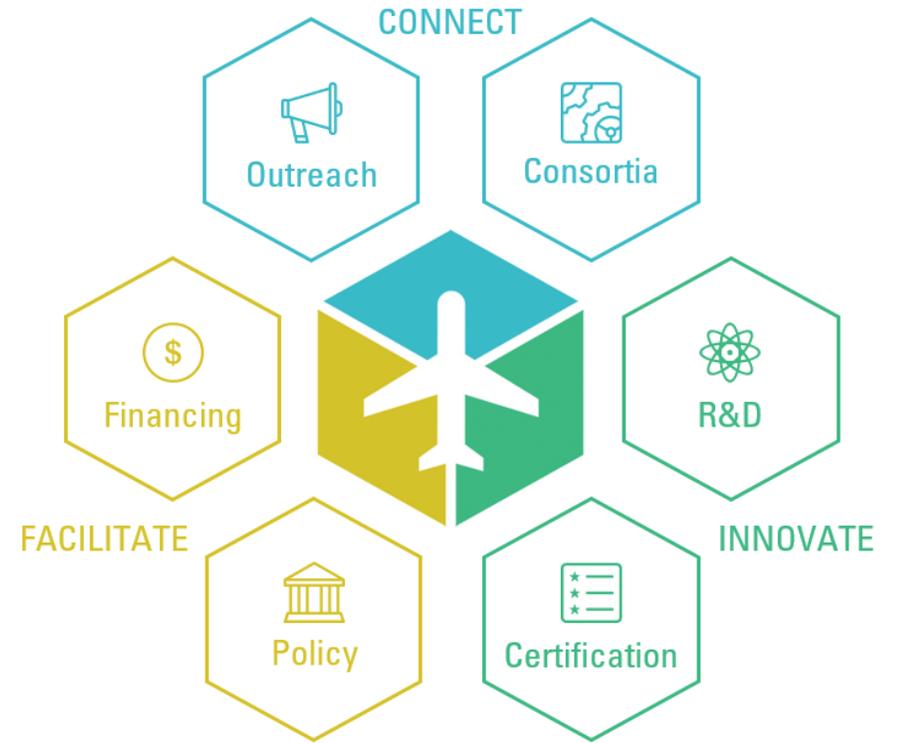
**F**UEL energy



**Closed Box**  
(Environmental Boundaries)

**Human Values**  
(Desirable Society)

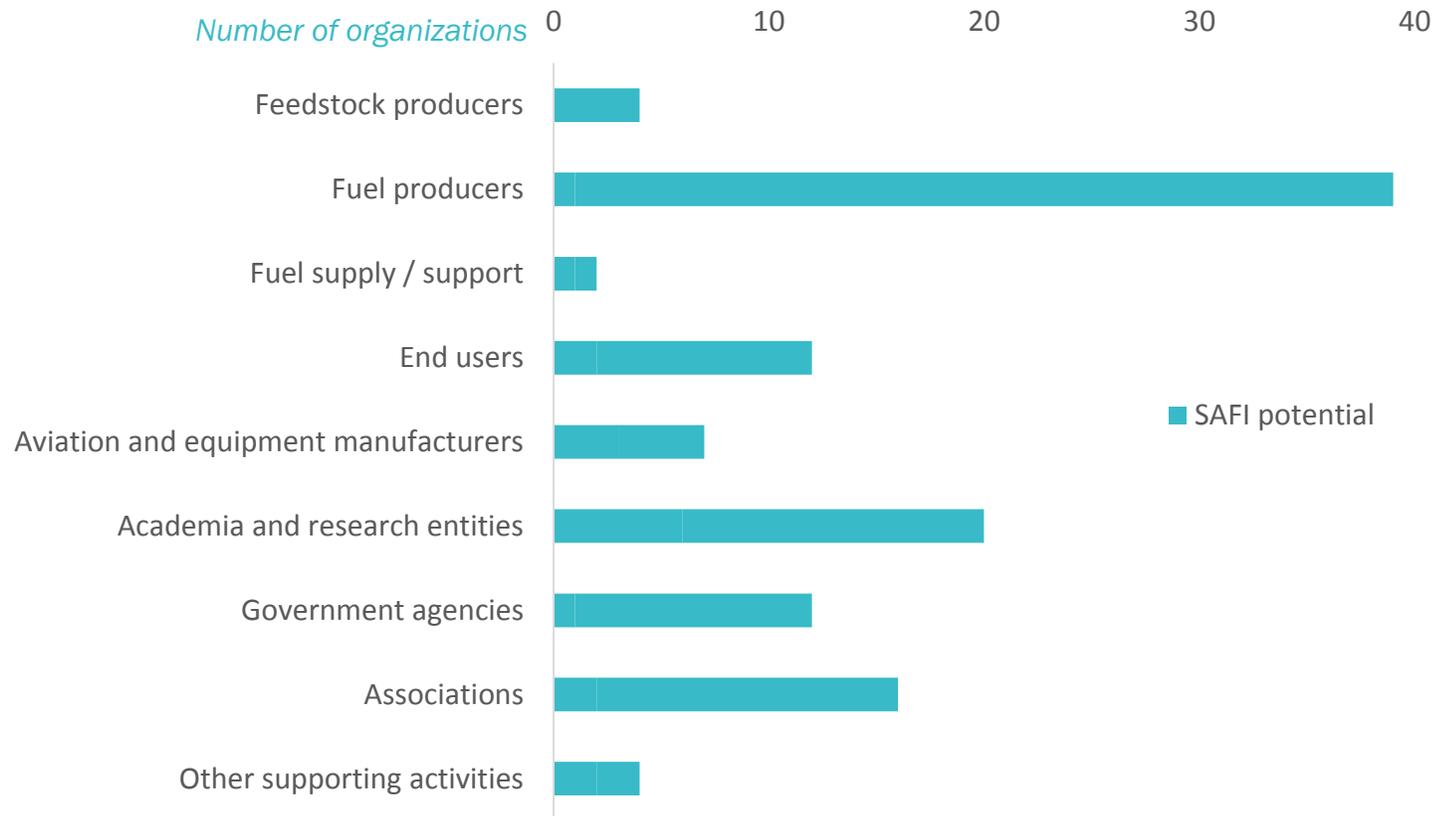
**Adaptable Tool**  
(Environmental Politics)





# Area of Focus & Stakeholders (*projected*)

A wide range of activities supported by a broad Membership



# Our *cheat sheet* while establishing SAFI Canada

## MANAGEMENT

## GOVERNANCE

- ❑ Establish in collaboration with your community values (why), vision (what) and objectives (how)
- ❑ Ensure strong outreach, engagement & communication of network's culture and action plan
- ❑ Integrate strong sustainability framework in network's activities & decision making process

- ❑ Ensure leveraging existing knowledge and efforts
  - Collective intelligence & system design
  - Co-creation with wide diversity of stakeholders
  - Network-to-Network Approach

- ❑ Think in terms of flexibility, resilience and adaptability
  - Diversify the sources of revenues / financial viability
  - Consider novel models of management (sociocracy, teal organisation, etc.)

- ❑ Be creative for the membership and governance strategy
  - Adapt to the dynamic of your community and the specific geopolitical context of your region
  - Understand deeply the wants and needs of each categories of your potential network members and participants

- ❑ Think in terms of diversity, independence & transparency
  - Take the time to properly design the governance, financial and legal structure of the network / Strategic committees for specific network needs
  - Don't design the initiative (network) for a specific program.

# Stakeholder engagement process for SAF initiatives



INNOVATE

CONNECT

FACILITATE

## Bioport Feasibility Study

### Rationale

- BioPortYVR has the potential to set the standard in sustainability by establishing an integrated, scalable and economical SAF supply chain.

### Objectives

- Following the results of study, bring all levels of government together and build the necessary public-private partnerships for a successful BioPortYVR deployment.
- BioPortYVR will pave the way for establishing BioPorts and SAF distribution supply chains at other airports in Canada.



## Events / Strategic Cocreation workshops



## Sustainability advisory services

- Advice on RSB certification process
- Gap analysis
- Supply Chain Mapping
- Stakeholders consultation
- Development of sustainability protocol
- Sustainability feedstock resource assessment



# Canada

## On a provincial level

### VISION

**Strengthen the SAF sector in Canada for the decarbonization of air travel**

**Establish bioports around Canadian airports**

### OBJECTIVE

**Align Canada with IATA target of 2% (208 ML/year) of SAF use by 2025, by:**

- Making sure that the required **volume is produced**
- Making sure that the produced **volume is sold**

**Maximize the contribution of each province towards the national target**

### STRATEGY

- Promote knowledge transfer
- Establish coalitions and PPPs
- De-risk public and private investments
- Enable cross-sectoral policy development
- Foster innovation and collaborative R&D
- Support technical and sustainability certifications



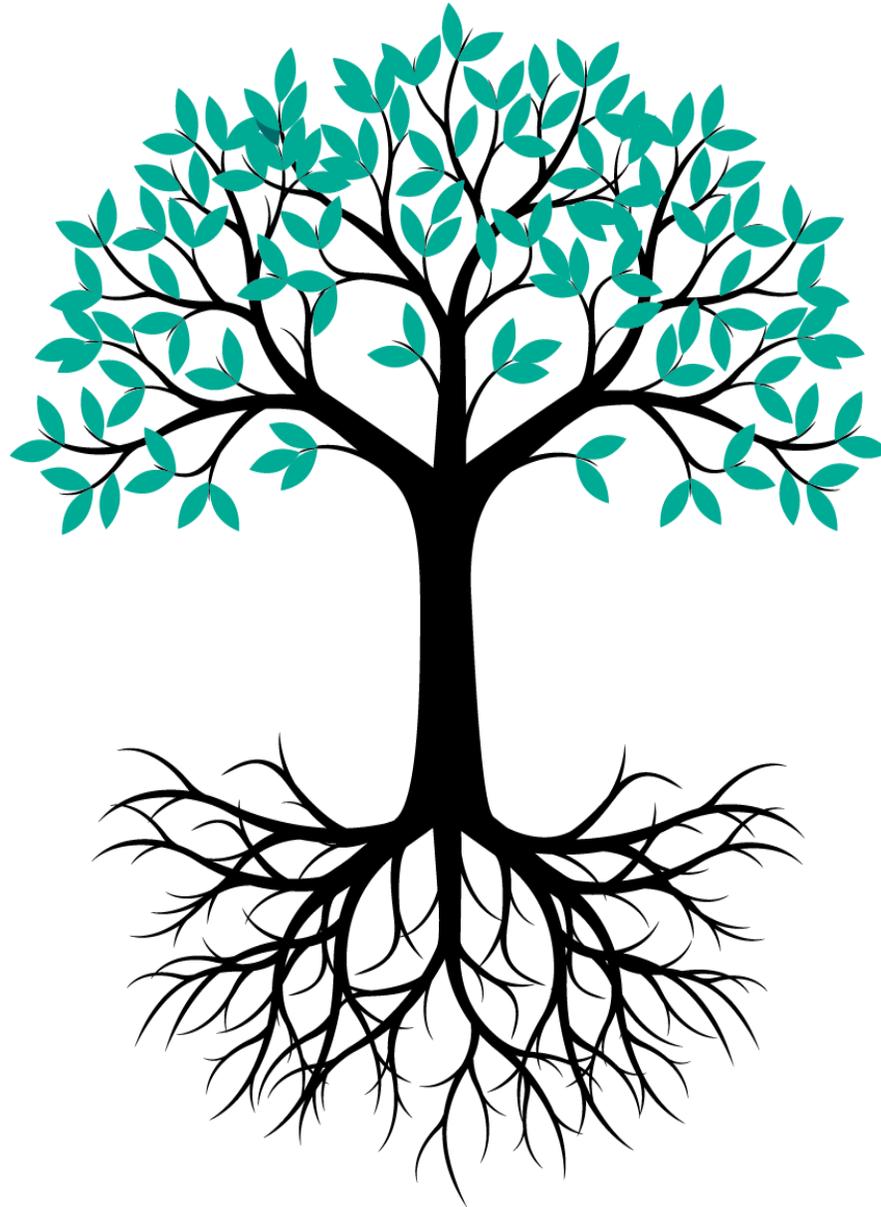
# Best practices for initiatives working on SAF



Collaboration &  
Innovation

Holistic vision &  
Systemic design

Engagement &  
knowledge transfer



- Multi-stakeholder consortia building
- Regional initiatives & collaborative flagship projects
- Public private partnerships (PPPs)
- Open system innovation
  
- Strategic cocreation workshops & *Think tanks*
- Working groups & Strategic Committees
- Business Innovation & Sustainability Services
- Circular Economy & Industrial Symbiosis
  
- Community management & communication activities
- Business & public relationships
- Reports, studies, shared knowledge database...



# Thank you.

GARDN | *GARDN.org*

SAF Community | *SAFcommunity.org*

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