

# SAF Global Supply Chain Development

**Washington State University , Massachusetts Institute of Technology, University of Hawaii, Hasselt University**

PIs: (WSU) M. Garcia-Perez, M. Wolcott, (MIT) Raymond Speth, Florian Allroggen, (UH) Scott Turn, (Hasselt U) Robert Malina

Co-PIs: (VOLPE) Kristin Lewis, (WSU) Kristin Brandt, Hanwu Lei, Lina Martinez

PM: Prem Lobo, FAA

## Objective:

Work with regional partners to design and analyze SAF supply chains in three regions: Latin America and Caribbean, Africa and Southeast Asia.

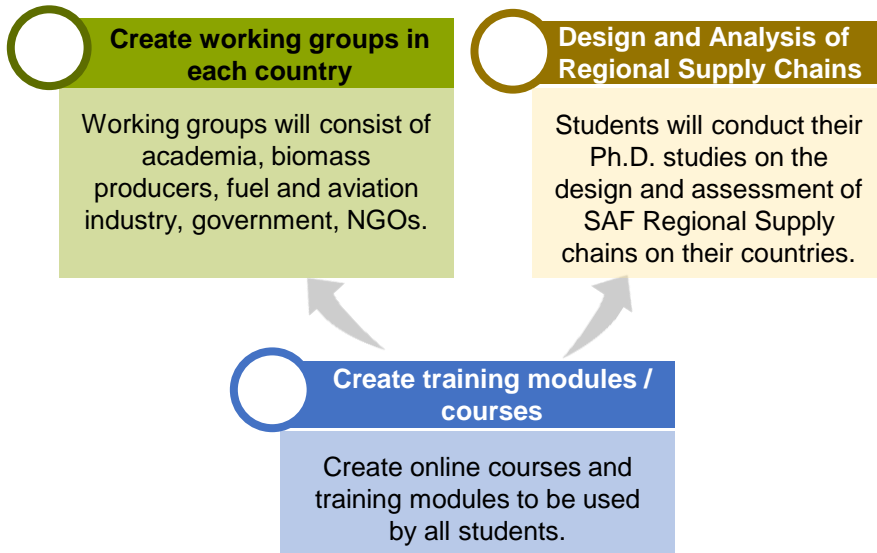
Create training modules/course/and graduate programs on the design and analysis of SAF production and supply chains.

## Project Benefits:

Identify potential for SAF production in the 3 regions that consider new pathways to optimize SAF production.

The data collected will direct stakeholders to identify desired locations and potential for SAF production.

## Research Approach:



## Major Accomplishments (to date):

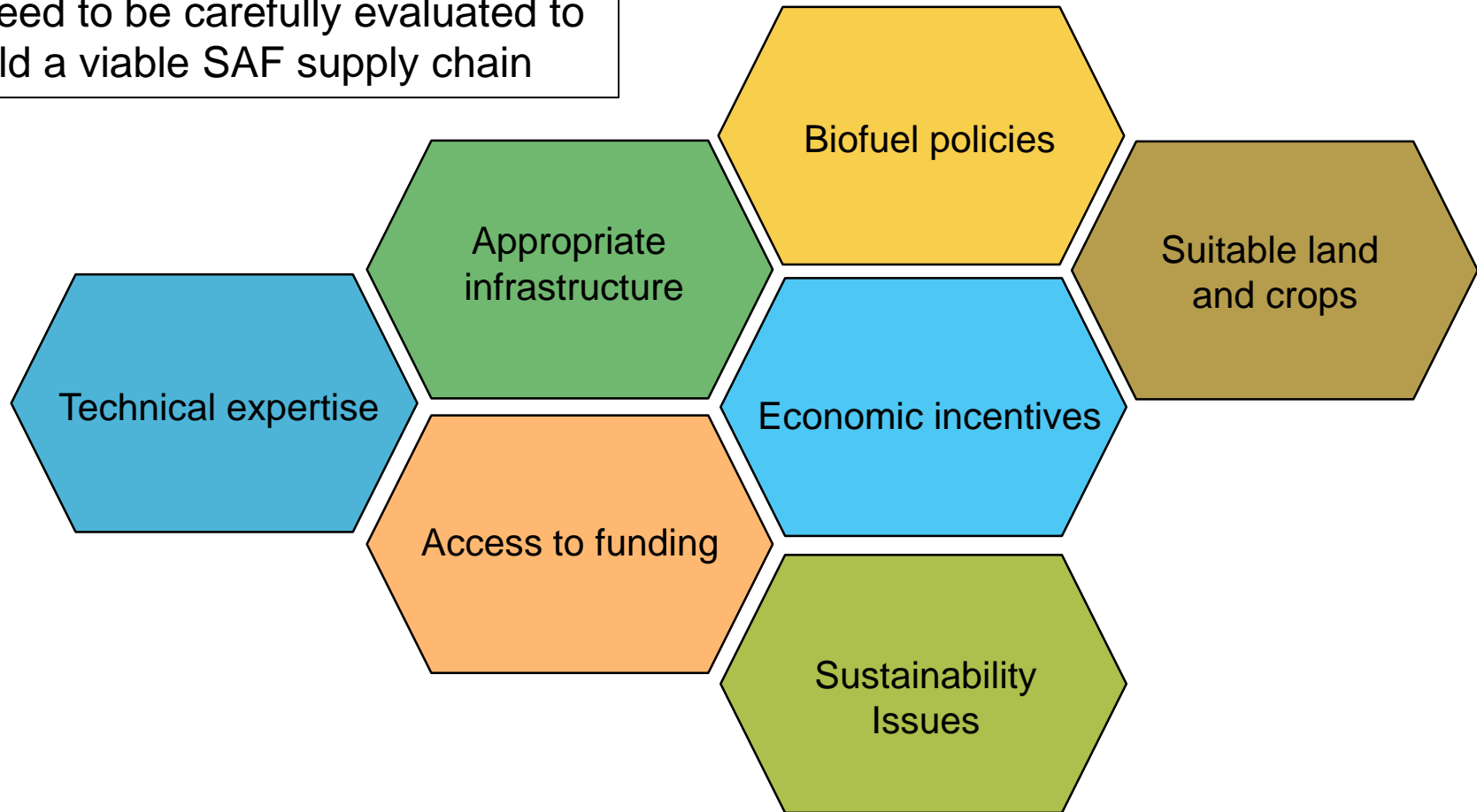
- Courses have been identified.
- Colombian working group formed. In conversations to create the working group in the Dominican republic.
- Some of the students that will work on the project have been identified.

## Future Work / Schedule:

- Creation of working in other participating countries.
- Work on the creation of online courses and training modules.
- Recruitment of International Students.

# SAF Supply Chain Challenges in developing countries

Every country and region has a unique set of challenges and opportunities that need to be carefully evaluated to build a viable SAF supply chain



# A key input for scale-up is a global assessment of bioenergy potentials and associated SAF production potentials

## Key drivers of bioenergy potentials by feedstock

- Land availability for suitable land types
- Food demand and diet
- Agroclimatic conditions
- Current and future yields for different crops



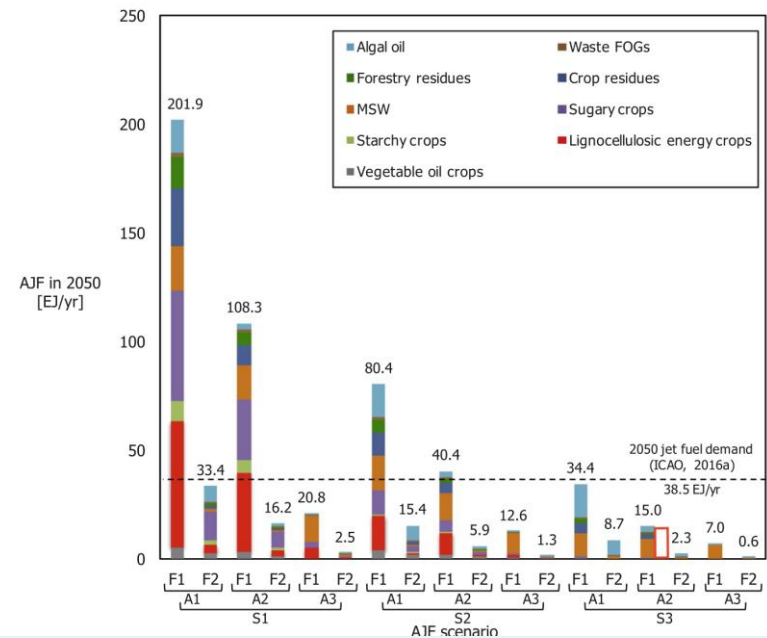
## Residue collection



Energy yields, output slates, and LCA of conversion technologies

## Regionalized SAF potentials

Global SAF potentials have been analyzed under A1 and predecessors

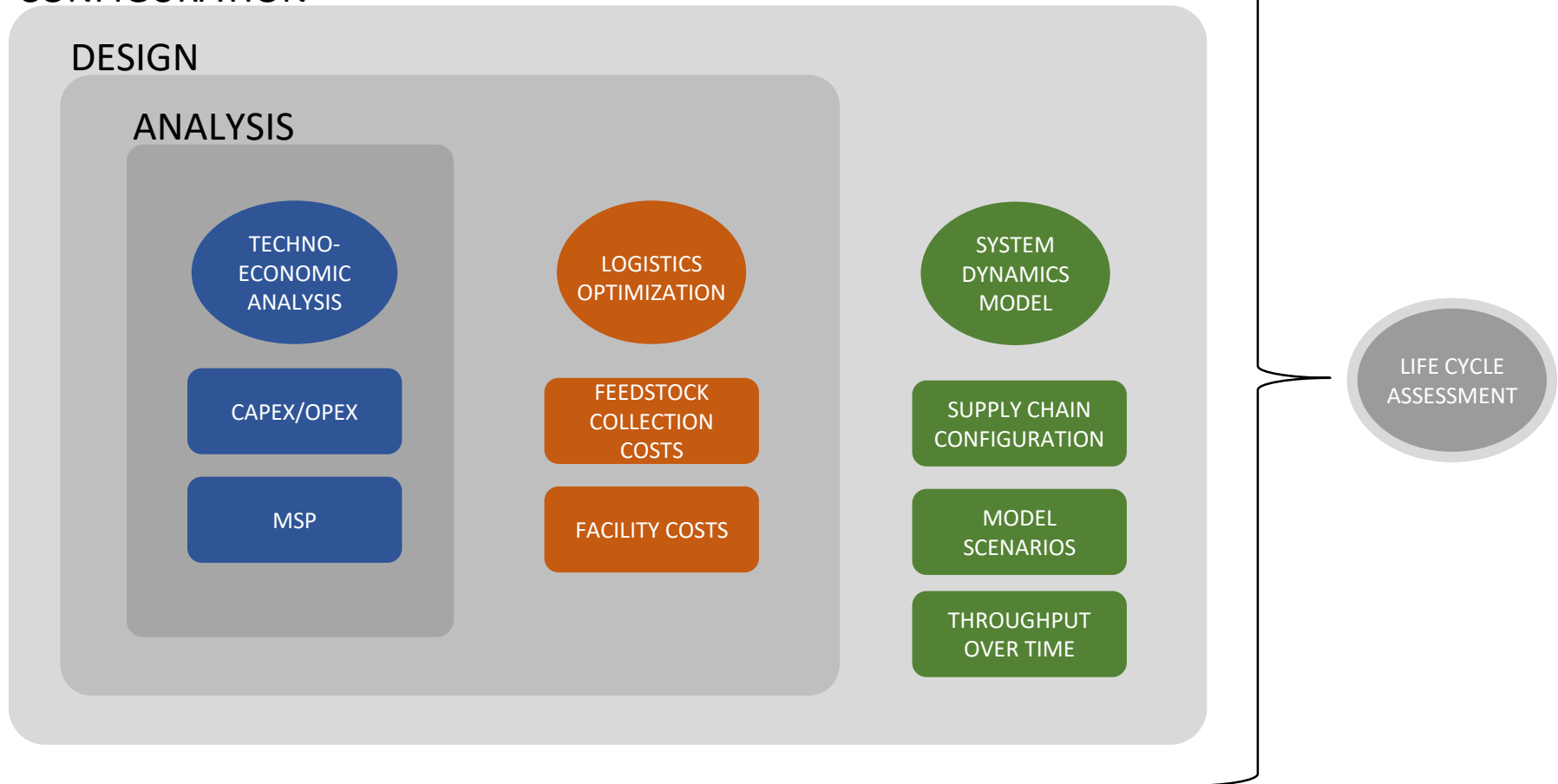


Source: Staples et al. (2018)

**Pulling together existing databases and literature: Can we produce a regionalized inventory of potentially available bioenergy to inform scale-up with specific feedstocks and/or technologies?**

# ASCENT Supply Chain Tools

## CONFIGURATION



CAPEX = Capital Expenditure  
OPEX = Operational Expenditure  
MSP = Minimum Selling Price

# Courses and Training Programs



- CORSIA
- (Induced) land-use change
- Feedstock & farming
- SAF Sustainability
- SAF logistics
- Conversion technologies
- Project financing
- Fuel properties and combustion emissions
- Fuel certification
- Economics (including TEA)
- Environmental impacts (incl. LCA modeling)
- Other regulations

# Region focus Areas (First phase)

## Latin America and the Caribbean



## Southeast Asia



## Africa



## Tentative Research

- Economics of SAF production
- Policies
- Finance
- Feedstock Challenge

# Assets and Current Engagement



## Assets

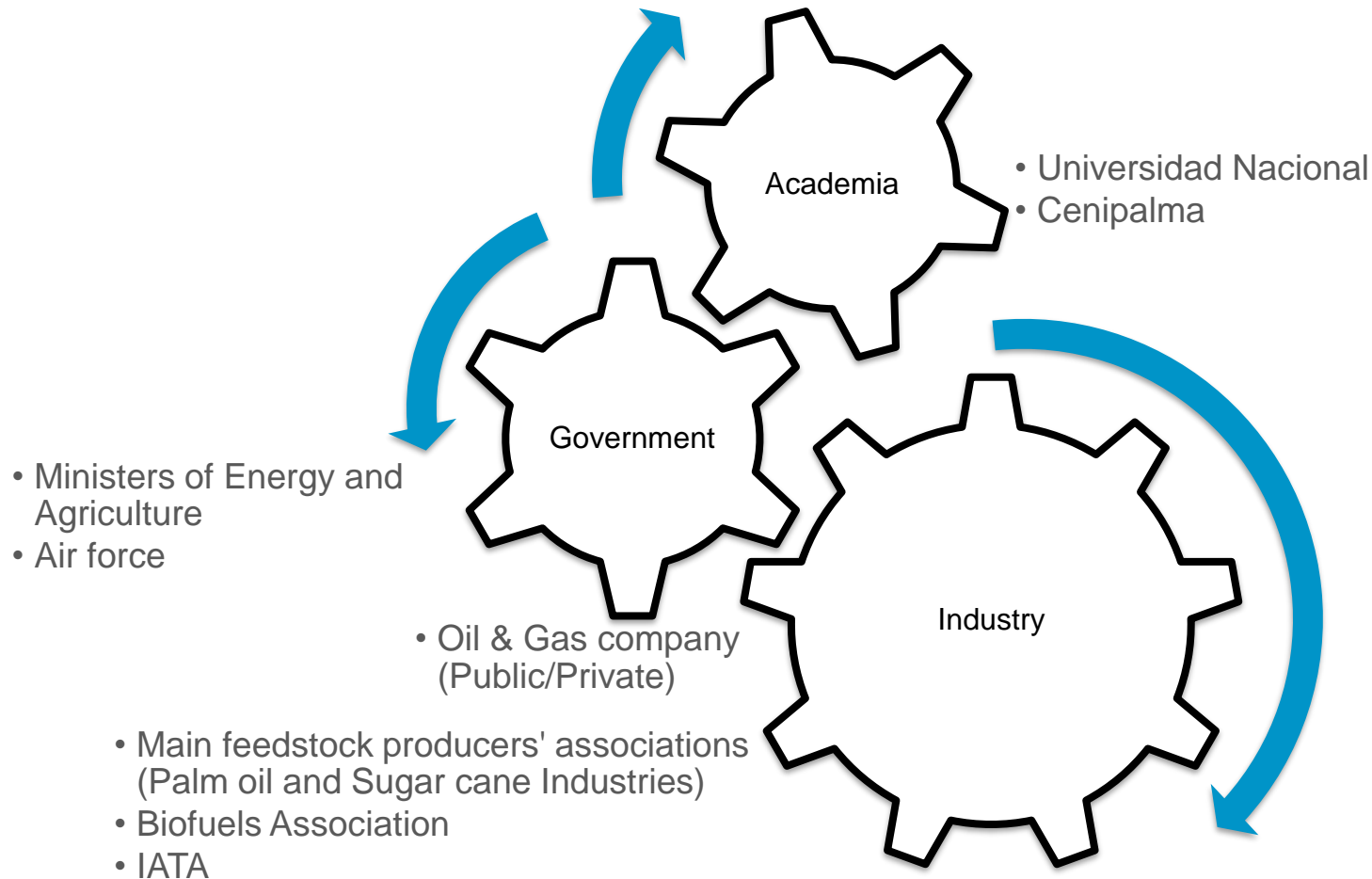
- Prior research relationships with universities in Colombia, Dominican Republic, Ecuador, Vietnam, Indonesia and Thailand.
- Collaboration with the World Bank Group on sustainable aviation fuel challenges in Africa, especially financing/capital-related (U Hasselt)
- Contact with IATA

## Current Engagement

- 20<sup>th</sup> International Oil Palm Conference (Cartagena, Colombia)
  - Steve Csonka (CAAFI) as a panelist in the SAF module
  - Lina Martinez as attendee networking with the Latin American Palm Oil Industry
- Sustainable Energy for a Sustainable future-ASABE conference in San Jose, Costa Rica (October 24-26, 2022)
  - Manuel Garcia-Perez will attend to network with Latin American Academics and the Industry. Presentation on Sustainable Aviation Fuels
- Energy transition toward carbon neutrality- APEC (Thailand)
  - Scott Turn presentation on U.S. Initiatives on Sustainable Aviation Fuel

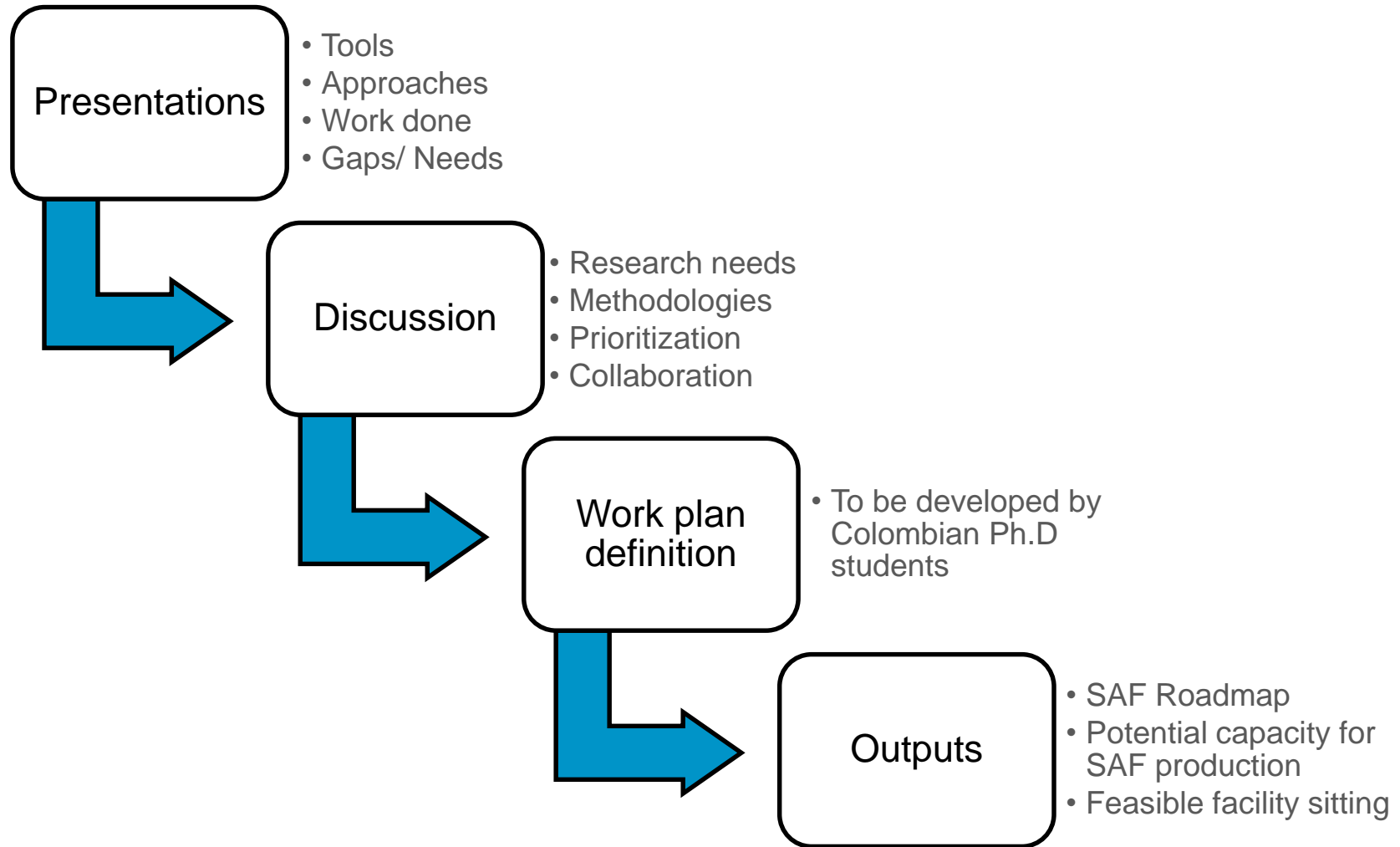
# Case study: Colombia

## Development of a working group





# Approach on technical support



# Questions