Global Trade Framework for Colombian Medicinal Plants

Motivation / Background

Global trade in Medicinal and Aromatic Plants (MAPs) > **4 billion $**

Colombia, is **2nd most** biodiverse country **but** ranks **low in exports**

Potential exists for Colombian Medicinal and Aromatic Plants to **increase its market share** Globally

Key Question / Hypothesis

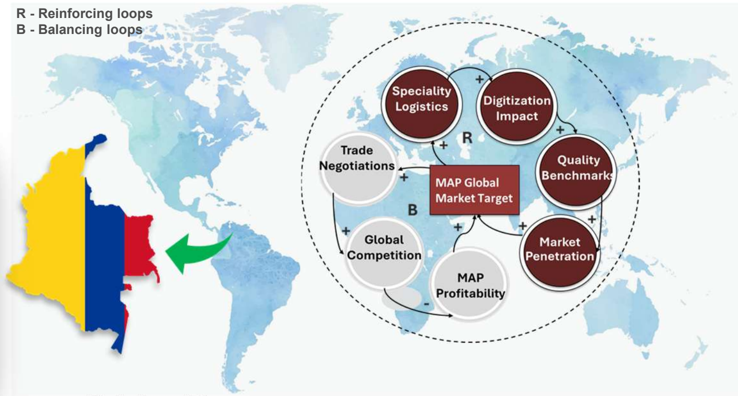
Why do biodiversity-rich countries struggle to translate potential into reliable exports?

How to overcome challenges and increase MAP market share ?

Relevant Literature

1. Agudelo, I. C., Mejía-Argueta, C., & Rodriguez, M. (2021). SME logistics clusters in Latin America: Patterns and institutional enablers. MIT Center for Transportation & Logistics Working Paper.

2. Shariatzadeh, M., Bijani, M., & Bahadori, F. (2025). Sustainable development of Iran's medicinal plant exports to the global value chain: A strategic analysis. Frontiers in Sustainable Food Systems, 9, 1500168



High-Level Causal Loop Diagram | Trade in Global Markets

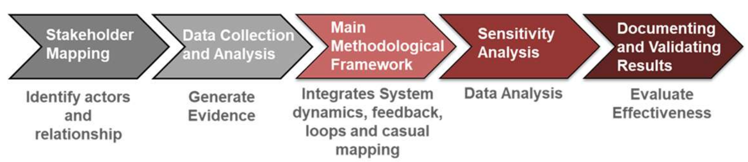
The Problem

1. Colombian MAP SMEs **lack structured logistics framework** linking production to exports.

2. Systemic gaps within, **weaken market access and reduce ability to meet global market potential**

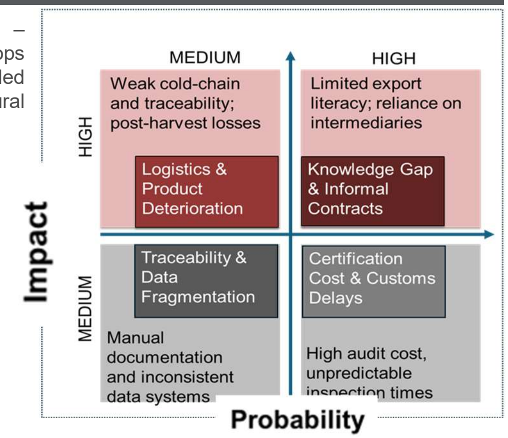
Methodology

System Dynamics-Based Qualitative Analysis:



Initial Results

Sys. Dynamics – Causal Lops Analysis revealed below structural risks and gaps:



Expected Contribution

Extend strategic supply chain to biodiversity-based SME: Links governance, coordination, and logistics through a System Dynamics perspective.

Operationalize qualitative insights into decision support: Transforms interviews and field evidence into causal structures and high-leverage intervention points.

Support scalable policy and investment design: Framework applicable to MAP value chains and other emerging-economy supply chains facing similar structural constraints.