



# WEBINAR

## LESSONS FROM LATIN AMERICA: How Can Smallholder Agroforestry Boost Climate Resilience?

WEDNESDAY, MAY 29, 2024 • 9-10AM EDT/1-2PM GMT



**MODERATED BY  
MARK CHANDLER**  
HEIFER INTERNATIONAL



**V. ERNESTO  
MÉNDEZ**



**LUISA  
TABÍN**



# Agroecology and Participatory Action Research to Support Smallholder Farmers in the Tropics

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Institute for Agroecology (IFA)  
May 2024



THE UNIVERSITY OF VERMONT  
**INSTITUTE FOR  
AGROECOLOGY**





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## Seeding Just and Sustainable Food Systems

Through a program of research, learning and action, the Institute is seeding transformations to regenerate the environment, cool the planet and provide healthy food for all. Join us in the movement to create more just and sustainable food systems.

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# Transformative agroecology

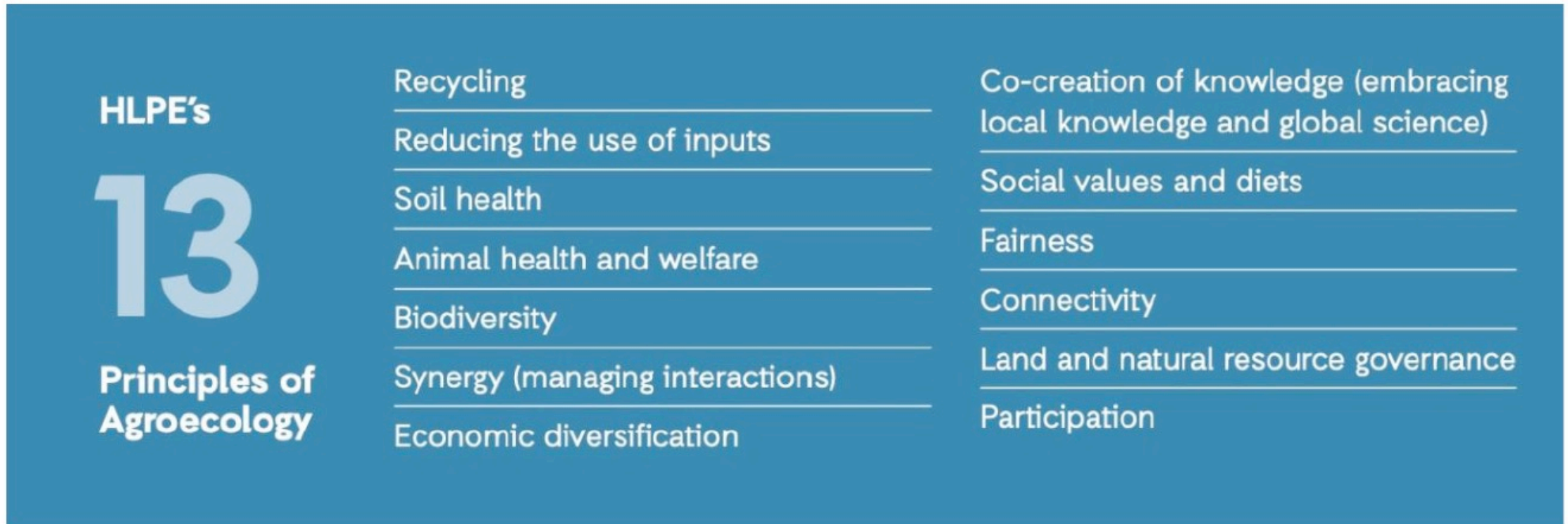
An approach to agriculture and food that seeks to achieve ecologically sound and socially just food systems, by:

- 1) Better understanding the **multiple dimensions and interactions** in our food systems
- 2) Integrating social and natural sciences with local and Indigenous knowledge, through **ecological, sociocultural, economic, and political** processes.



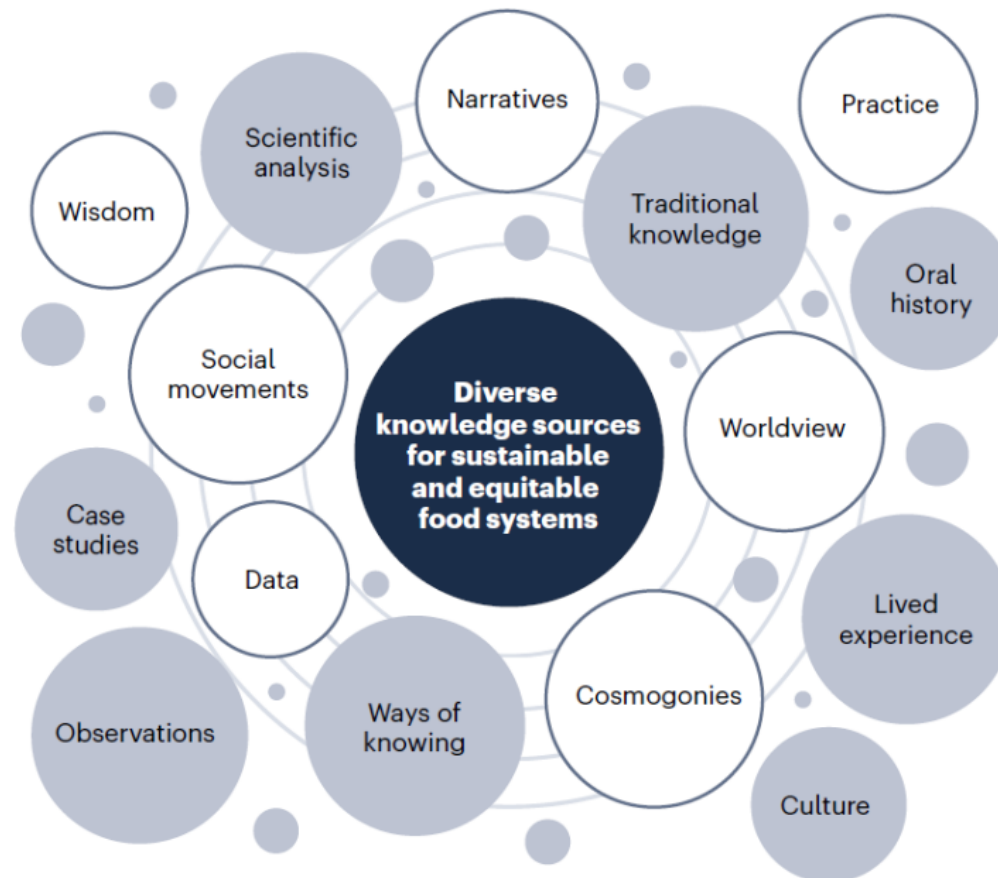


# Agroecology Principles



*Figure 1: HLPE's 13 Principles of Agroecology. Reproduced from Anderson & Bruil (2021).*

# Transdisciplinarity: Valuing Diverse Knowledge Systems



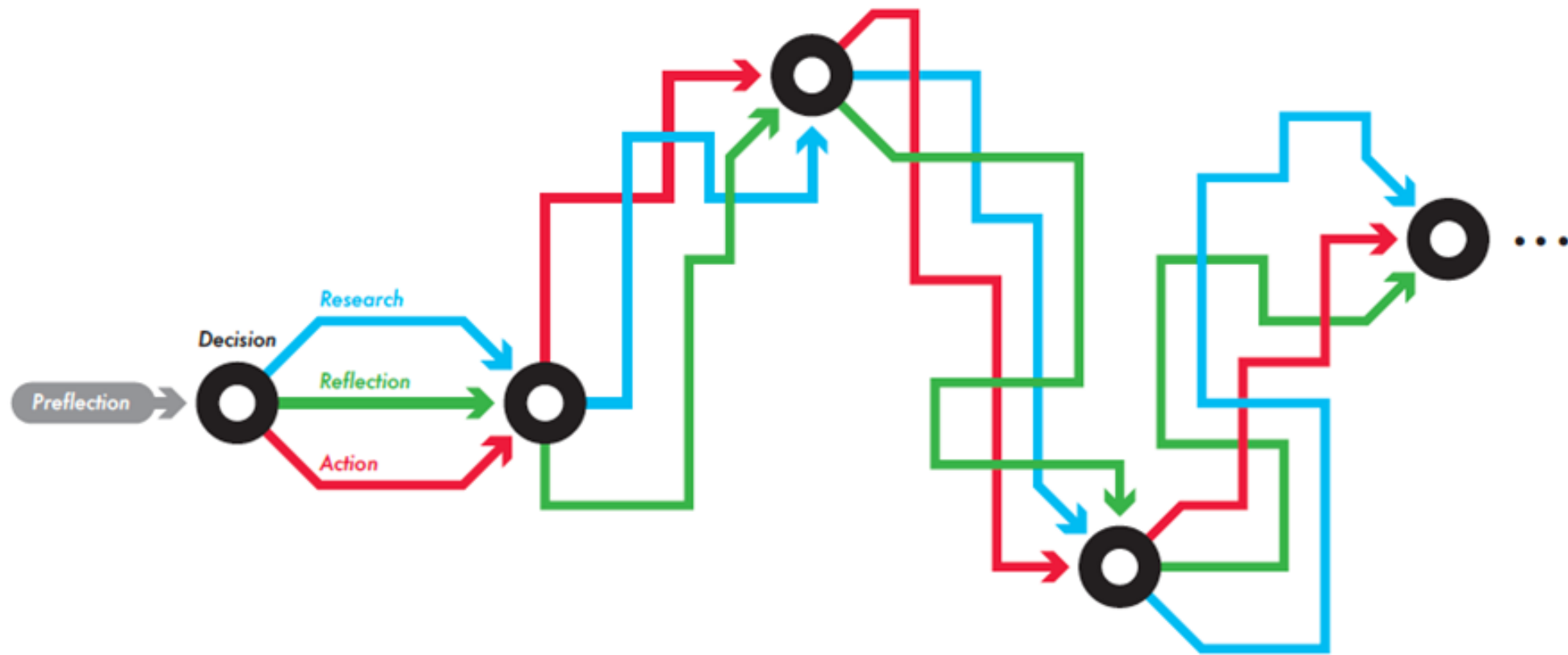
**Fig. 1 | Diverse knowledge sources for sustainable and equitable food systems.** Adapted with permission from ref. 12, Copyright © 2021 Global Alliance for the Future of Food.

**Source:** Brock, S., et. al. (2024) *Knowledge democratization approaches for food systems transformation*. Nature Food.  
<https://doi.org/10.1038/s43016-024-00966-3>.



# Participatory Action Research (PAR)

*“Doing research with people, for people”*



Source: Caswell et al. (2021)

# Agroforestry for Smallholder Resilience

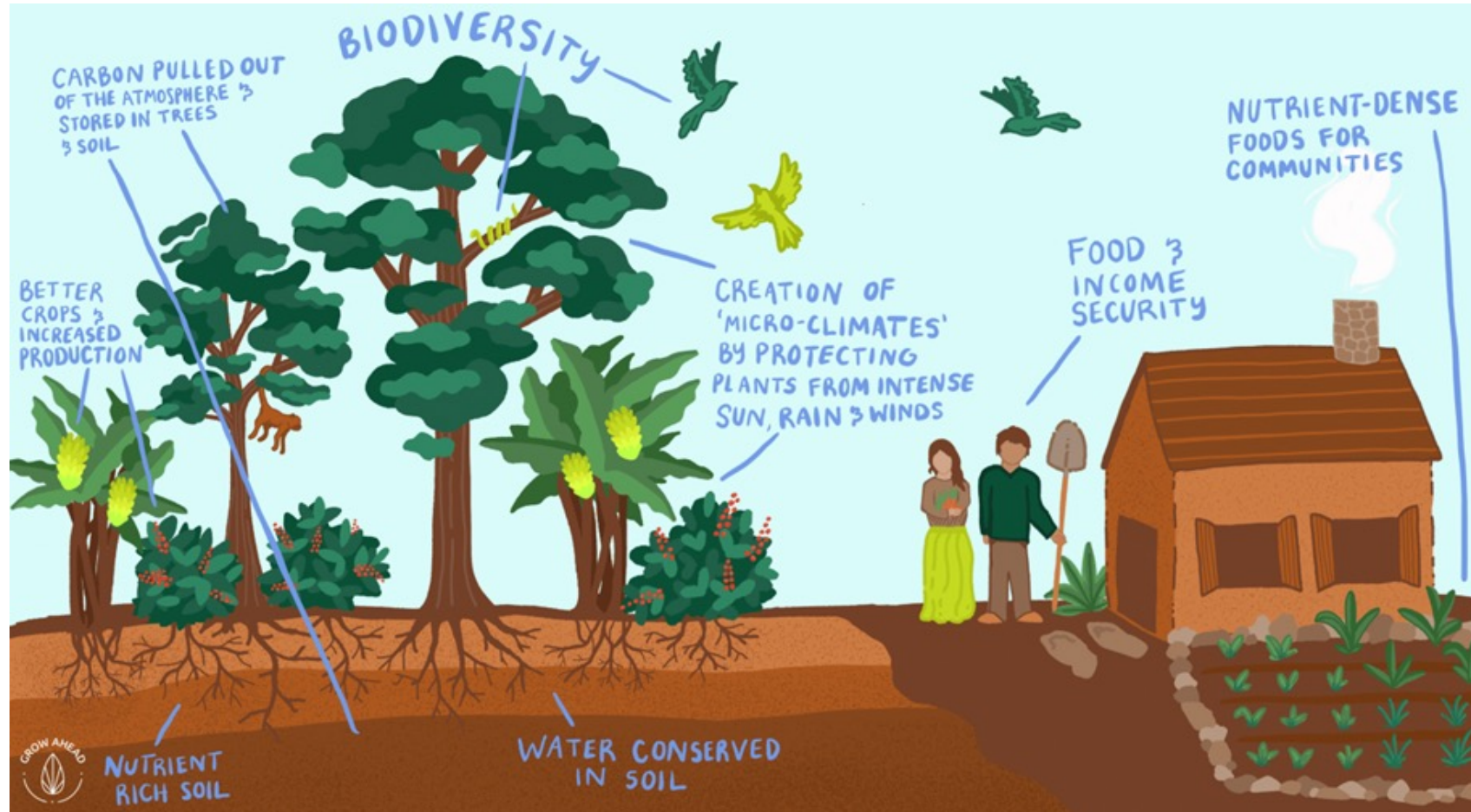
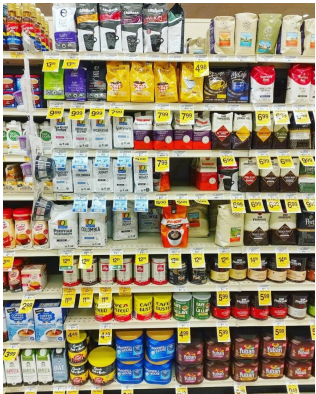
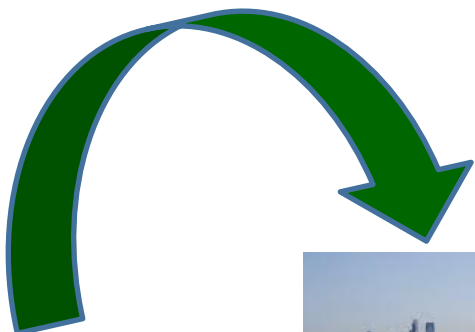


Figure source: <https://growahead.org/>



# The Coffee Value Chain



# Climate Impacts on the Coffee Value Chain

Price instability  
Migration

Lower Yields

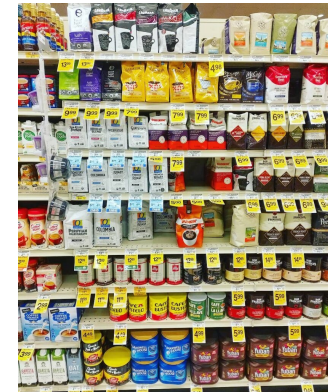
Food insecurity

Pests & Diseases



Fluctuating  
cup quality

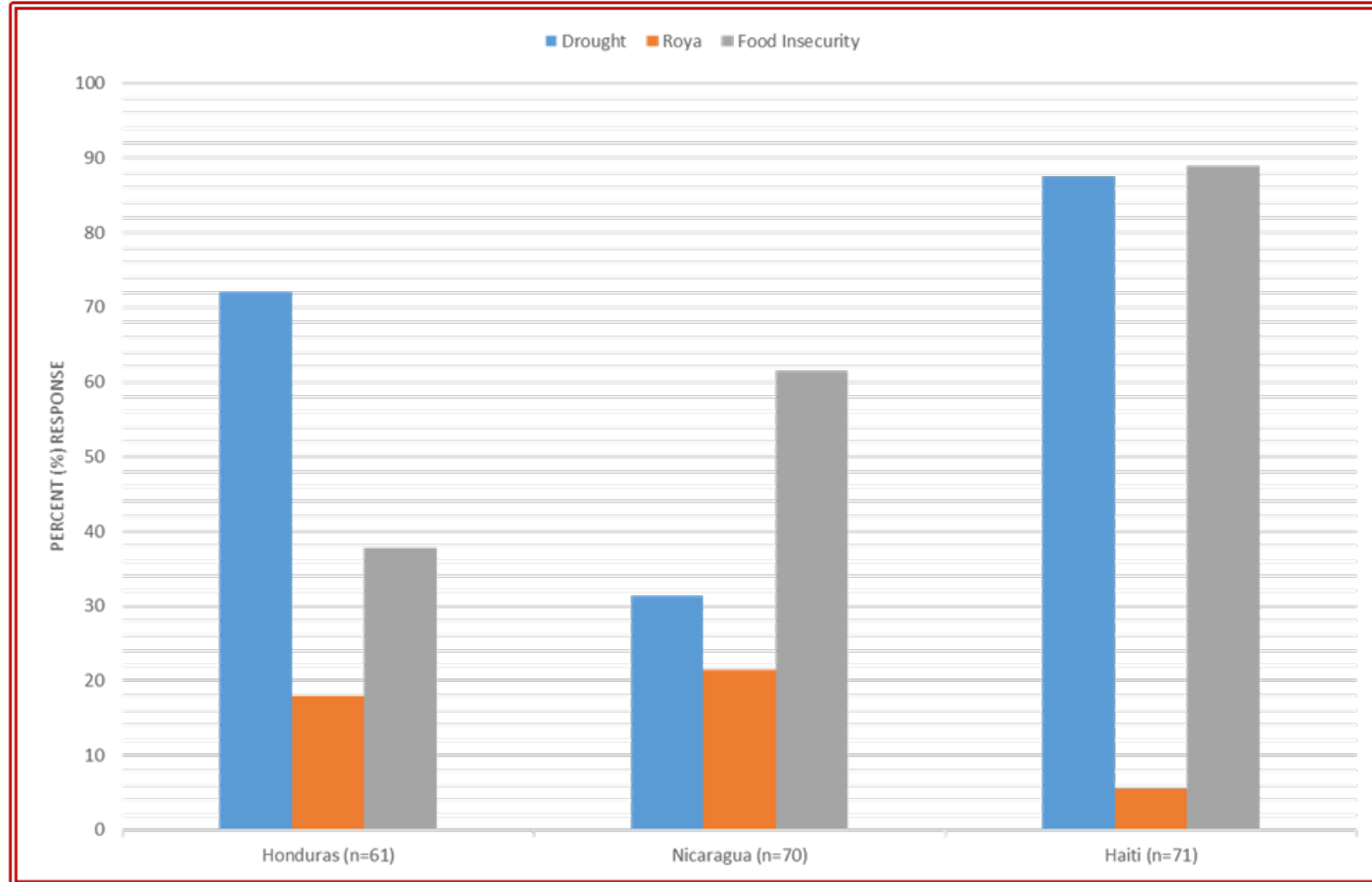
Supply  
instability



Higher energy  
costs



# Main Climate Change Effects Reported by Coffee Farmers in 2015



# Agroecological Practices for Resilient Coffee Systems



Diverse agroforestry systems



Live barriers for soil erosion



Vegetation cover between coffee rows



# Assessing Diversification Strategies in Smallholder Coffee Systems of Mesoamérica (2017–)



Funded by:



The University of Vermont







## General objective of the project

Analyze how agricultural diversification affects smallholder coffee farmers' food security, climate change resilience, and gender equity

**Agroecology Principles:** *Biodiversity, synergy, economic diversification, Co-creation of knowledge, Social values and diets*







Highlands (Sierra Madre)

Funded in 1994

663 members in 2017 (211 women)

Buffer zone of the National Park *El Triunfo*



Photos: Janica Anderzén and Alejandra Guzmán Luna







*"Nadie sabe todo, todos sabemos algo"*






2do

# INTERCAMBIO

## de Aprendizajes



12-16  
Agosto  
2019






**MEXICO  
NICARAGUA**

Intercambio entre cooperativas,  
investigadore/as, técnico/as, estudiantes, y  
organizaciones sobre la...

**DIVERSIFICACIÓN EN LOS CAFETALES DE  
MESOAMERICA  
-Chiapas, Mexico-**

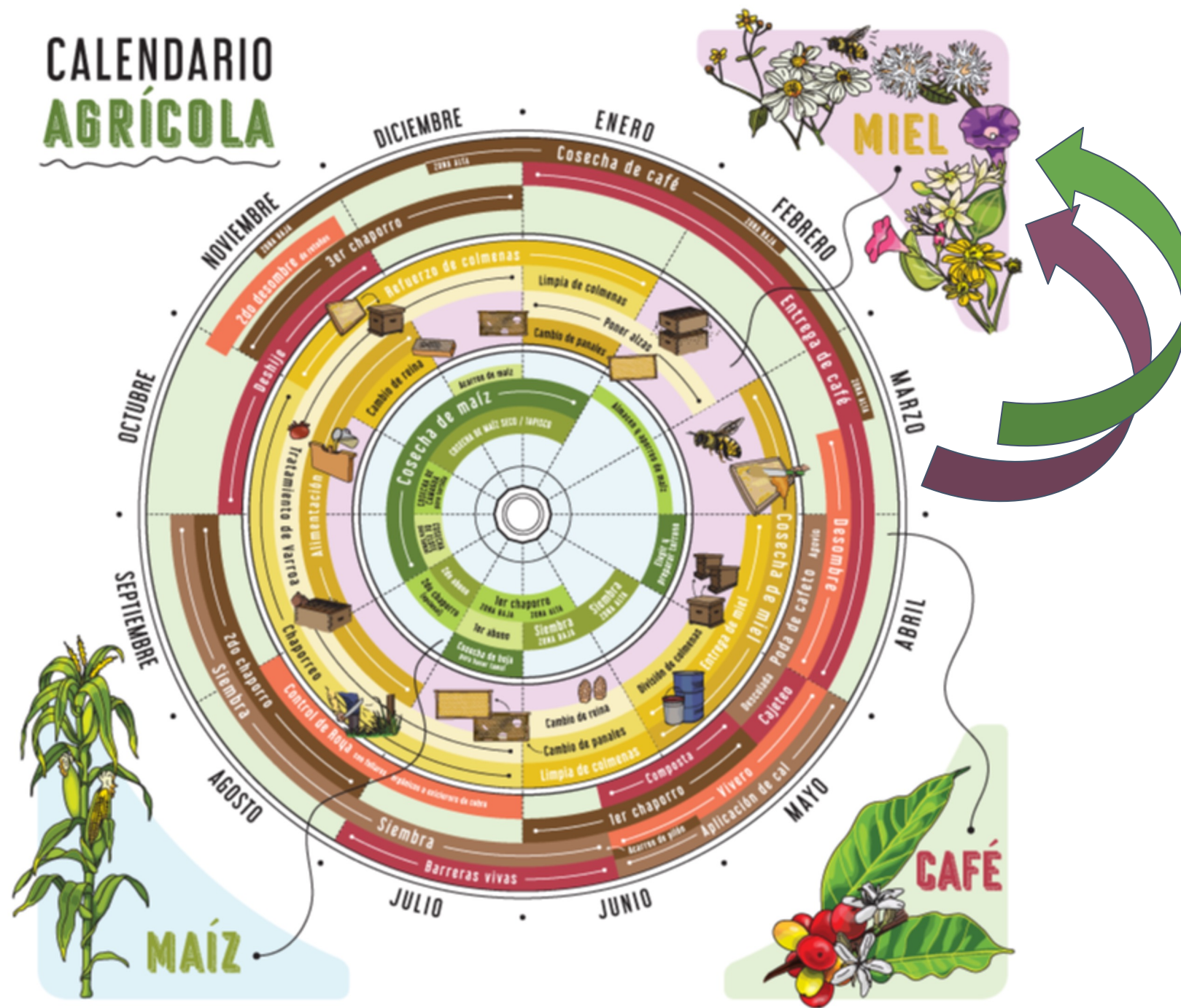
<https://canunite.org/our-work/projects-2/diversification-on-coffee-farms/>





# CALENDARIO AGRÍCOLA





# Diversification Included in the Cooperative's Strategic Plan



Photos: Janica Anderzen

# Actions to Support Smallholder Coffee Farmers Across the Chain

| Actions for the Industry   | Actions for International Development Actors  | Actions for Researchers  | Actions for Farmers  |
|--|---|--|--|
| <ul style="list-style-type: none"> <li>Recognize the links between healthy communities, healthy families and a healthy supply chain</li> </ul> | <ul style="list-style-type: none"> <li>Differentiate interventions (options by context)</li> <li>Build partnerships that will last (both with funders &amp; beneficiaries)</li> <li>Observe what is emerging and be ready to adapt</li> </ul> | <p>PAR –</p> <ul style="list-style-type: none"> <li>Engage in processes in partnership with farmers, NGOs &amp; industry</li> <li>Identify appropriate tools/techniques for farmer participation</li> <li>Follow cycles of jointly analyzing results and determining next steps</li> </ul> | <ul style="list-style-type: none"> <li>Assess bandwidth</li> <li>Assert agency</li> <li>Seek partners who provide ongoing and appropriate support (commit to both short and long-term benefits)</li> </ul> |



**Thank You**  
**Muchas Gracias !!!**  
**Merci Beaucoup**



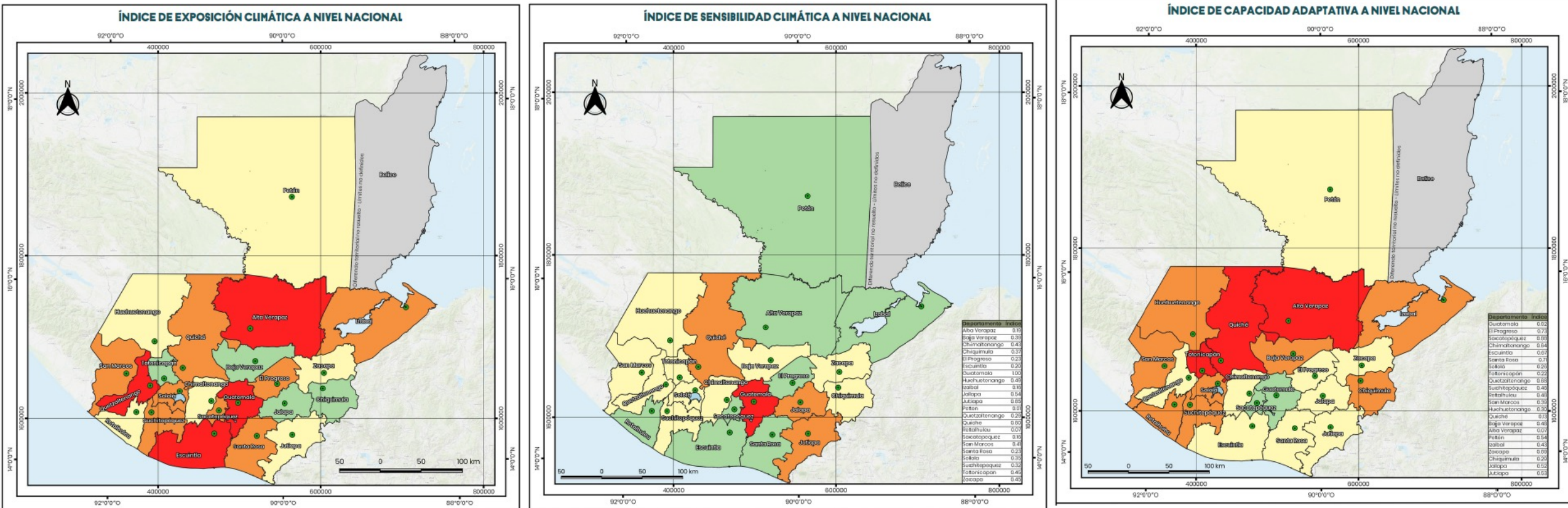
# Case Study: Guatemala's Green Business Belt



Luisa Fernanda Tabín  
Project Manager



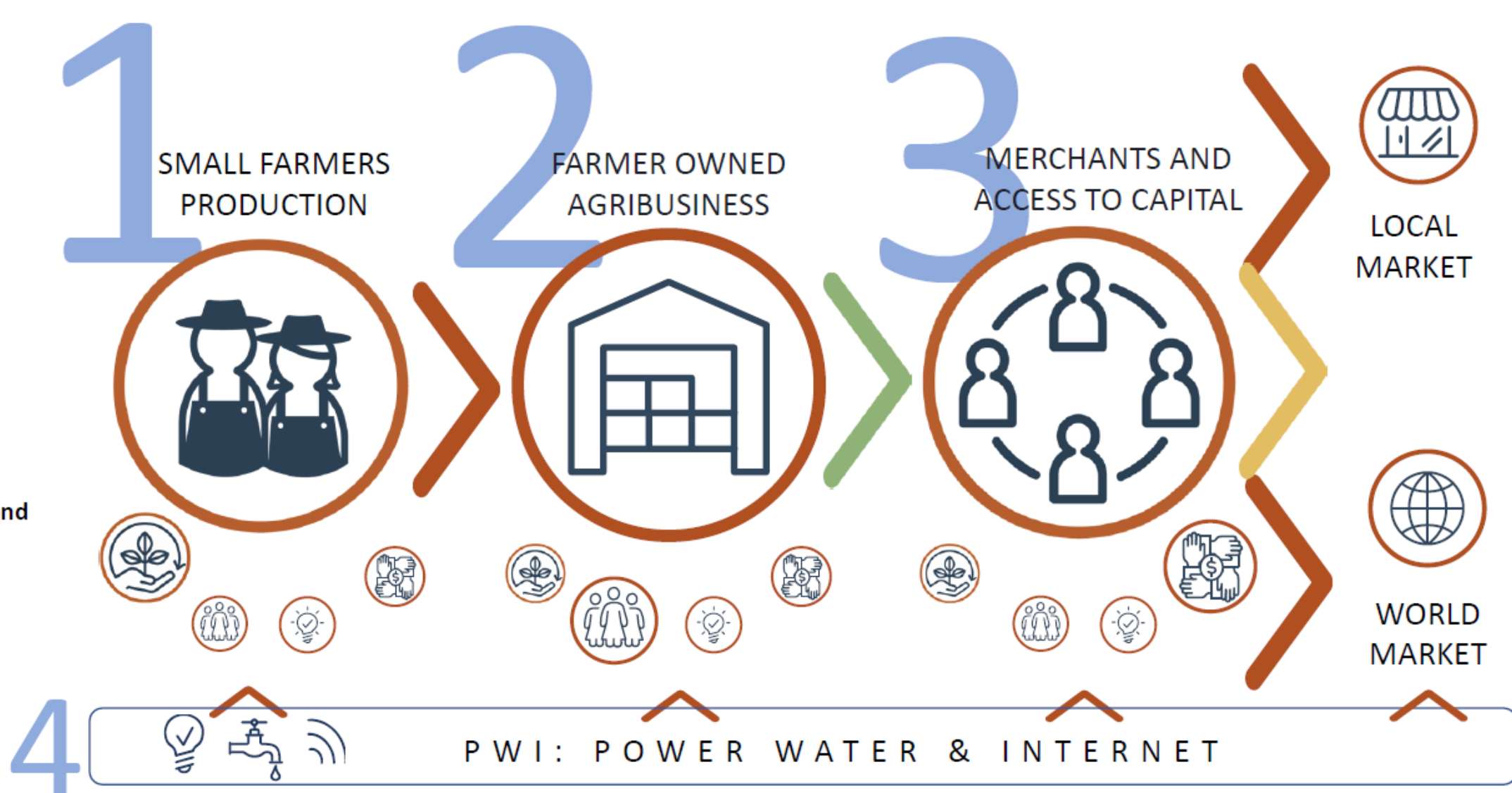
# Guatemalan Context



SOURCE: MARN, RAINFOREST ALLIANCE 2022

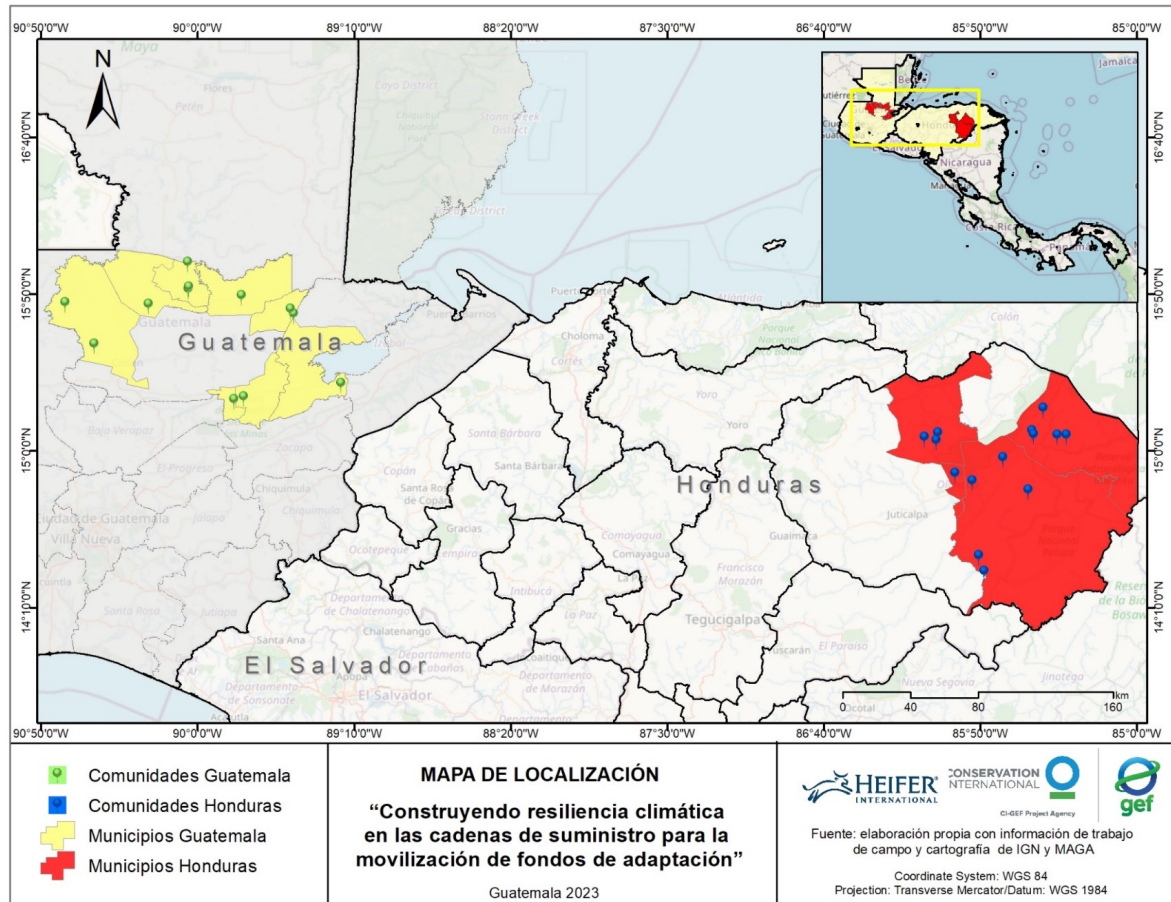
# GBB MODEL

Agroforestry Systems for Cardamom value chains and other spices





# Developing an Adaptation Equivalency Index



## Value Chains

### GUATEMALA



Allspice



Cardamom



Cocoa

### HONDURAS



Cocoa



Coffee

- Base line: 48 communities
  - Socio-economic data
  - Environmental data
  - Adaptation practices
  - Climate change knowledge
  - Status of value chain



# Key Findings

- Droughts
- Diversification
- Technical management
- Knowledge
- Water management
- Gender participation
- Government assistance
- Financial access





# Developing the AEI

## Actors

- Farmers, experts, private sector, public sector and academy

## Definition

- A tool used in the assessment of vulnerability and adaptation to climate change in natural and human systems.
- It is based on the concept that different systems have different adaptive capacities to climate change and therefore require different levels of adaptation efforts.

## Construction of the tool

- After the review, interviews and meetings between consultants and various other actors, a tool was created to be able to generate the framework

$$IEA_{total} = \frac{(IEA_1 + IEA_2 + IEA_3 + IEA_4 + IEA_5)}{5}$$



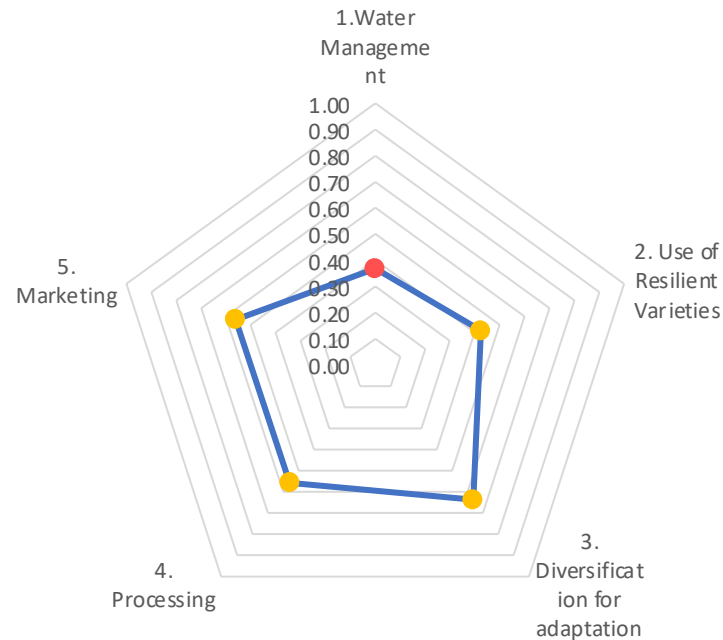
# Participatory Workshops



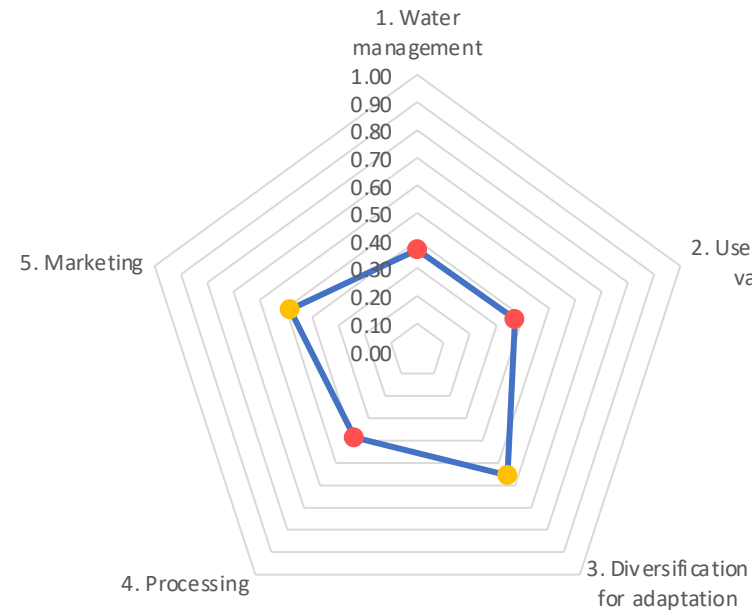


# Community Results

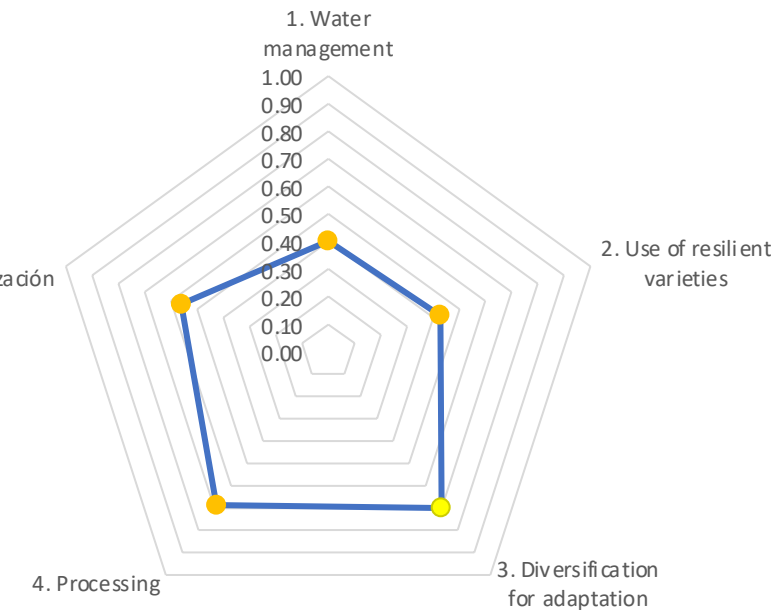
| CACAO                             | INDICE |       |
|-----------------------------------|--------|-------|
| VARIABLES                         | VALOR  | NIVEL |
| 1. Water Management               | 0.37   | BAJA  |
| 2. Use of resilient varieties     | 0.42   | MEDIA |
| 3. Diversification for adaptation | 0.64   | MEDIA |
| 4. Processing                     | 0.56   | MEDIA |
| 5. Marketing                      | 0.56   | MEDIA |



| CARDAMOMO                         | INDICE |       |
|-----------------------------------|--------|-------|
| VARIABLES                         | VALOR  | NIVEL |
| 1. Water Management               | 0.37   | BAJA  |
| 2. Use of resilient varieties     | 0.37   | BAJA  |
| 3. Diversification for adaptation | 0.56   | MEDIA |
| 4. Processing                     | 0.39   | BAJA  |
| 5. Marketing                      | 0.49   | MEDIA |



| PIMIENTA GORDA                    | INDICE |       |
|-----------------------------------|--------|-------|
| VARIABLES                         | VALOR  | NIVEL |
| 1. Water management               | 0.40   | MEDIA |
| 2. Use of resilient varieties     | 0.43   | MEDIA |
| 3. Diversification for adaptation | 0.60   | MEDIA |
| 4. Processing                     | 0.50   | MEDIA |
| 5. Marketing                      | 0.52   | MEDIA |



# Lessons Learned

- Improving resilience through **collaborative and focused action**.
- Need for **increased training and collaboration** among actors at all levels to share knowledge and resources.
- These results should be seen as a starting point for a **process of continuous improvement** and not as an end in themselves.





Thank you!

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