

# Reducing Climate Risks in Latin American Agricultural Sector: *A Tool to Prioritize Climate Smart Agriculture Interventions*



RESEARCH PROGRAM ON  
**Climate Change,  
Agriculture and  
Food Security**



Ana María Loboguerrero  
*CCAFS Regional Program Leader in Latin America*





- About CCAFS
- The challenge and Climate-Smart Agriculture
- Climate-smart Agriculture Prioritization Framework (CSA-PF)
- Examples of CSA-PF at national, subnational and local scales
- Key messages
- Q&A

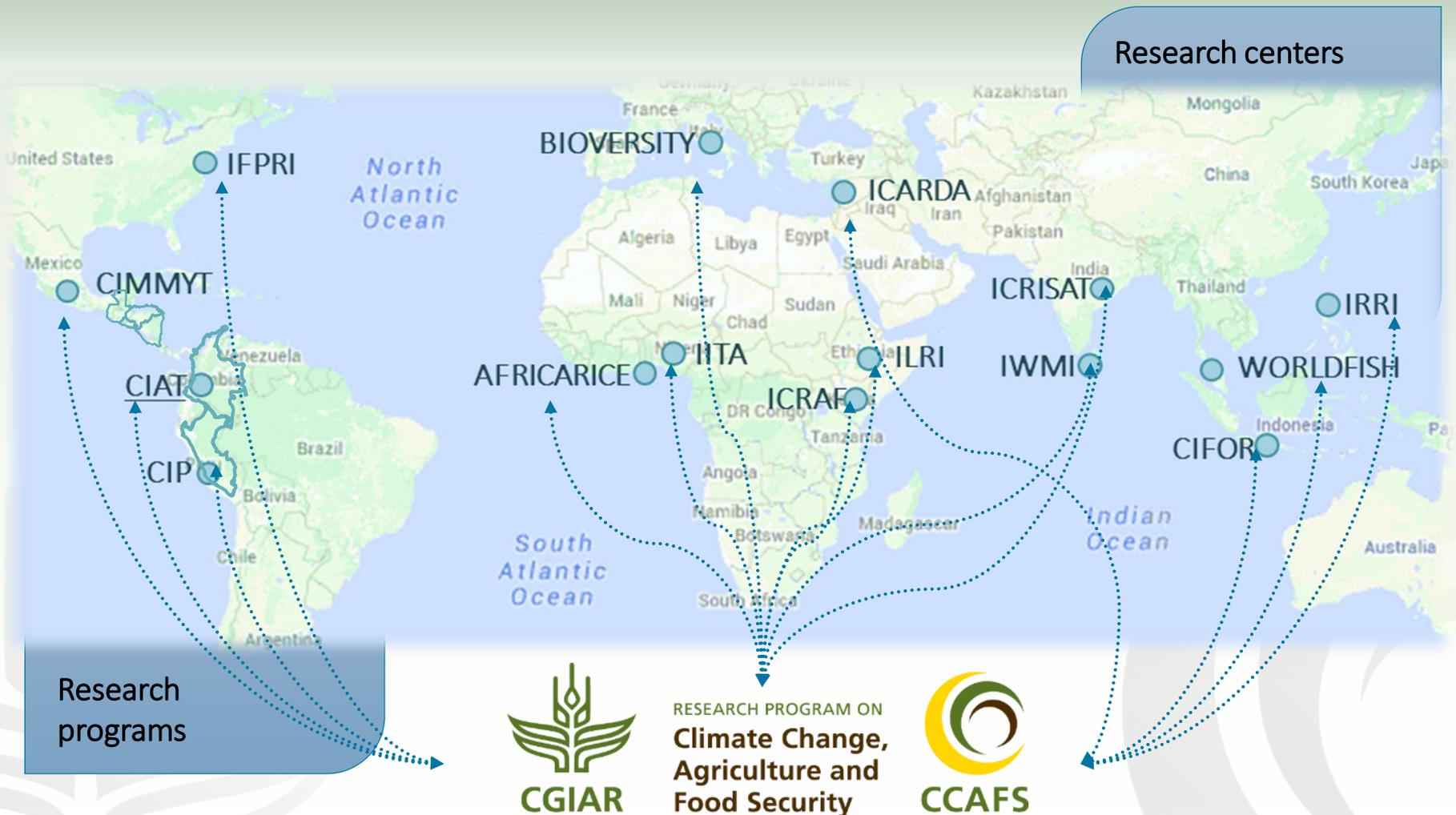
# A global research partnership



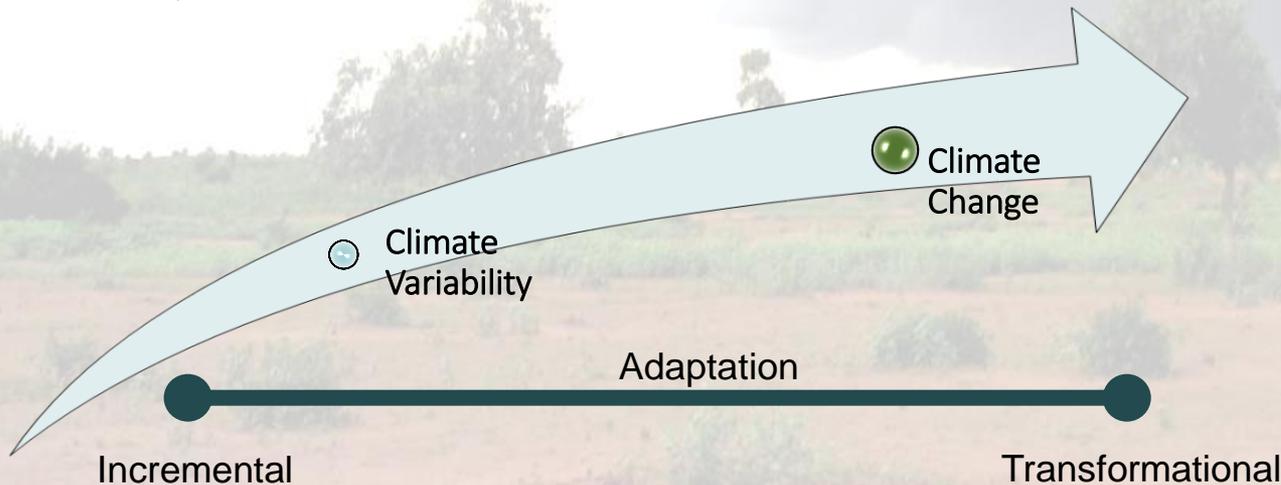
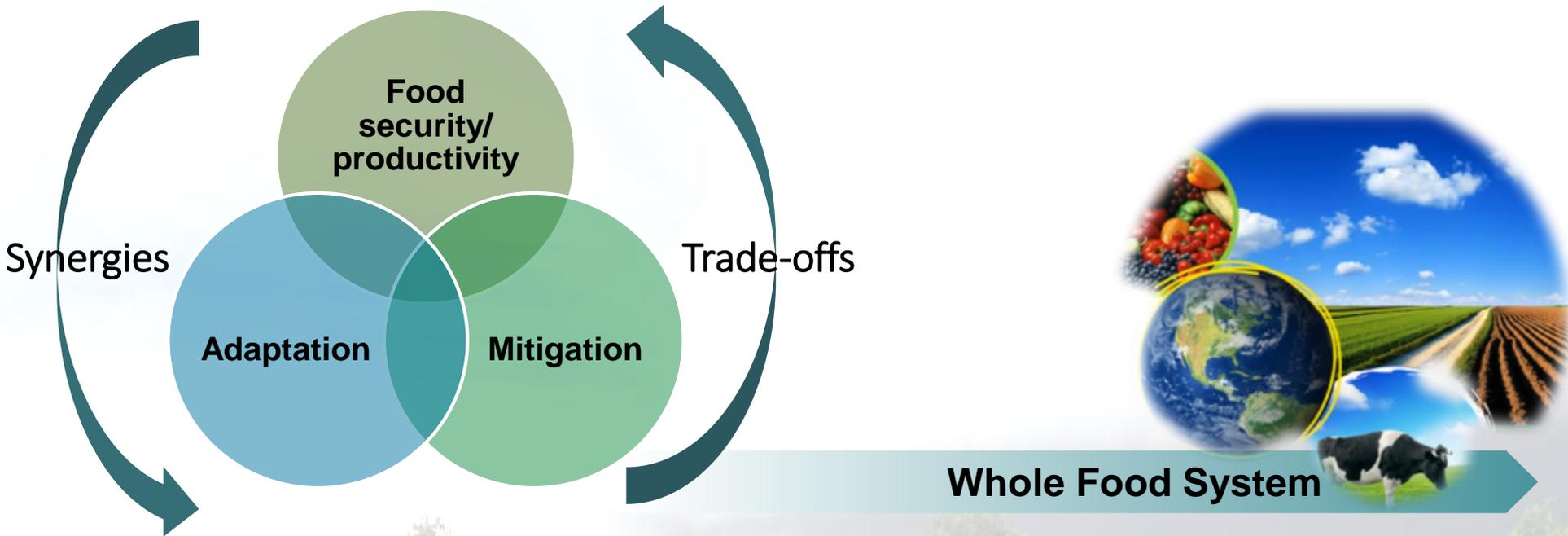
RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



CCAFS works closely with the CGIAR System research centers to generate high-quality scientific products to support decision-making in rural communities to address the impacts of changing climate.



# The challenge and Climate-Smart Agriculture



# Significant Demand



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



- Governments looking for means to prioritize adaptation options:
  - ✓ Shopping lists  portfolios of actions
- Climate finance and multi-lateral donors looking for tools to direct their investments (IFAD, World Bank, USAID) and ways to achieve co-benefits with funding.



## More strategic investments in agriculture, targeting:

- *Agro-ecological areas and key production systems for food security*
- *CSA pillars considering local needs and available resources*

Climate-Smart  
Technologies and  
**Practices** 



## Alternative funding sources for implementation and scaling of CSA practices and policies

- *Based on a prioritization of CSA actions*



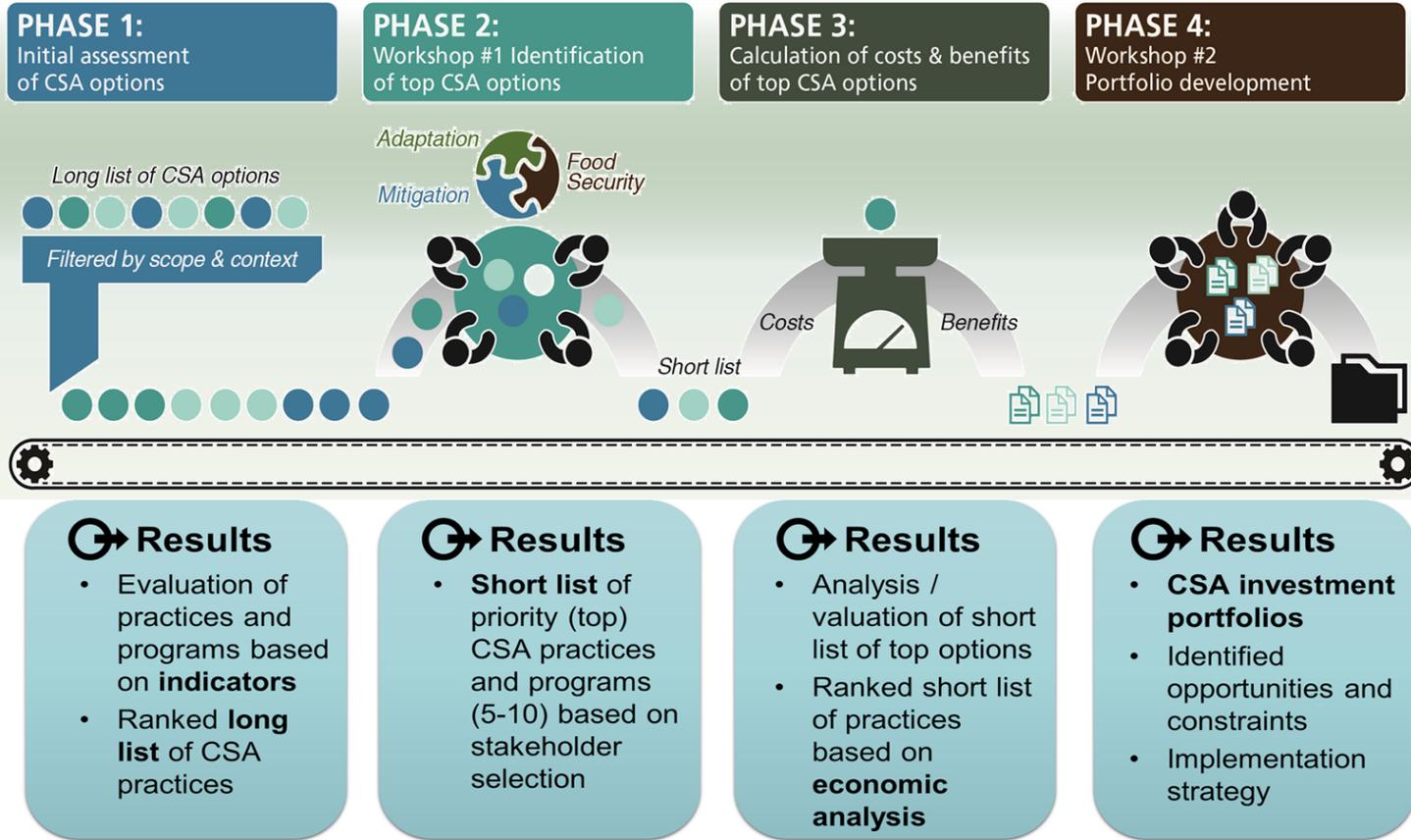
## Across scales dialogue between a diversity of stakeholders to identify collectively challenges and solutions

- *Defining priorities in a participatory manner which provides legitimacy to the process*

# Climate-smart Prioritization Framework



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



**Results**

- Evaluation of practices and programs based on **indicators**
- Ranked **long list** of CSA practices

**Results**

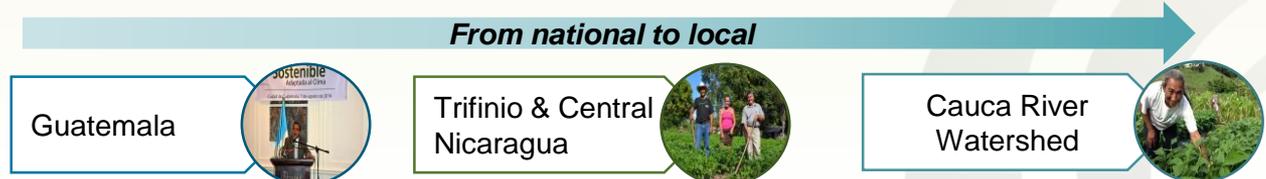
- Short list** of priority (top) CSA practices and programs (5-10) based on stakeholder selection

**Results**

- Analysis / valuation of short list of top options
- Ranked short list of practices based on **economic analysis**

**Results**

- CSA investment portfolios**
- Identified opportunities and constraints
- Implementation strategy



# Why it is so innovative?



It's more than a classic cost-benefit analysis.



Beyond knowing the technical aspects to implement a CSA practice, it allows understanding the associated barriers and opportunities.



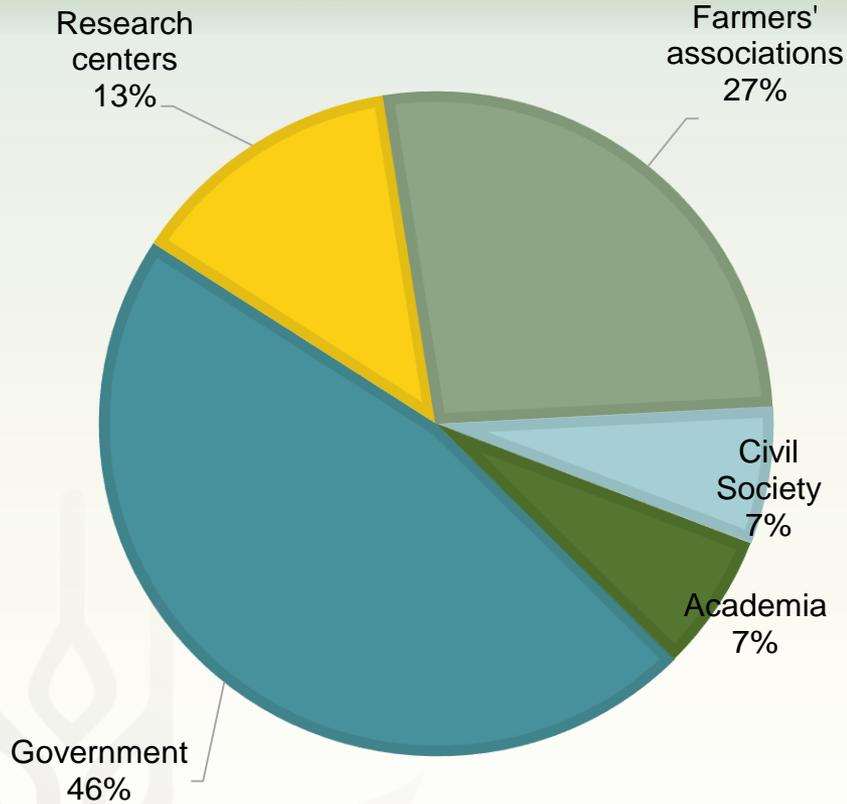
Assessment of the economic, social and environmental costs and benefits that can be generated in the short and long term, as well as other practices with which it could have synergistic effects in productivity, adaptation and mitigation.



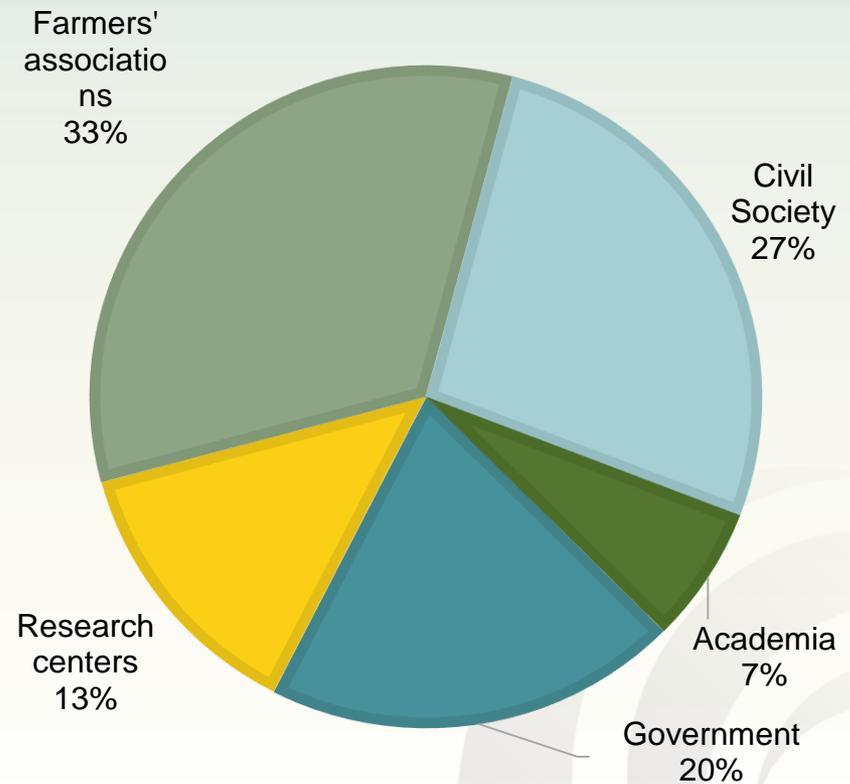
Participation of stakeholders from different sectors contributes to make a more realistic assessment using their different experiences and perspectives.

# Participation of stakeholders from different sectors

## GUATEMALA



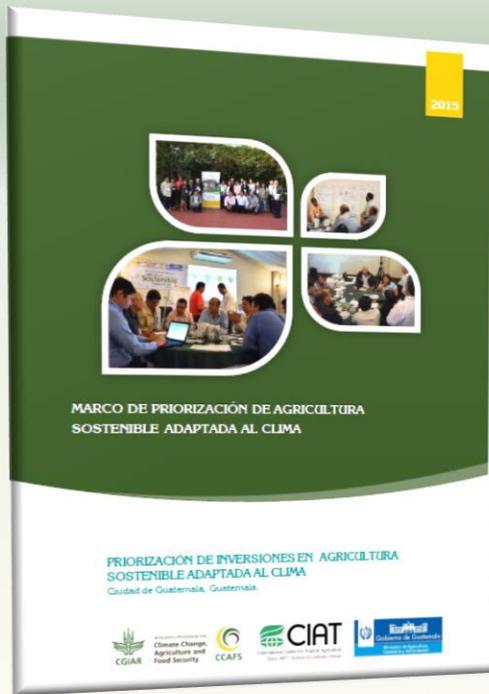
## CAUCA, COLOMBIA



# CSA-PF in Dry corridor of Guatemala

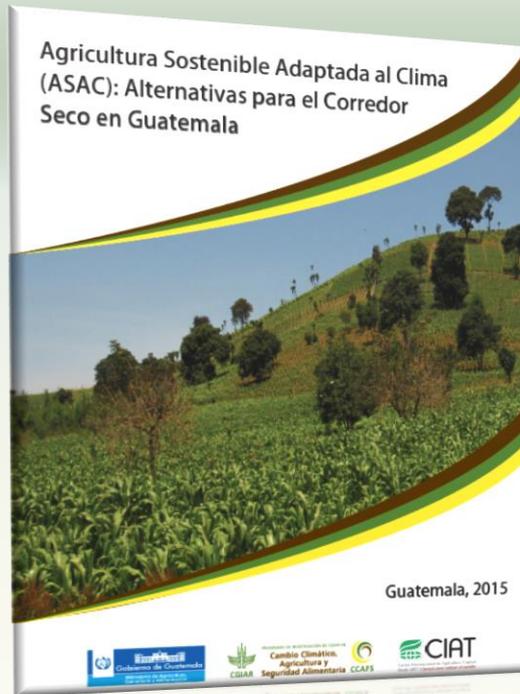


RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



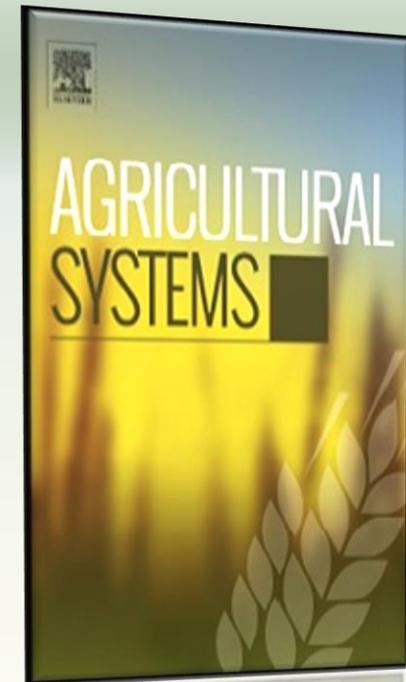
**Final report: Prioritizing investments in climate-smart agriculture in Guatemala (in Spanish)**

<http://hdl.handle.net/10568/71043>



**Climate-Smart Agriculture (CSA): Alternatives for the Dry Corridor in Guatemala (in Spanish)**

<http://hdl.handle.net/10568/80719>



**Costs and benefits of climate-smart agriculture: The case of the Dry Corridor in Guatemala**

<https://dx.doi.org/10.1016/j.agsy.2016.05.004>

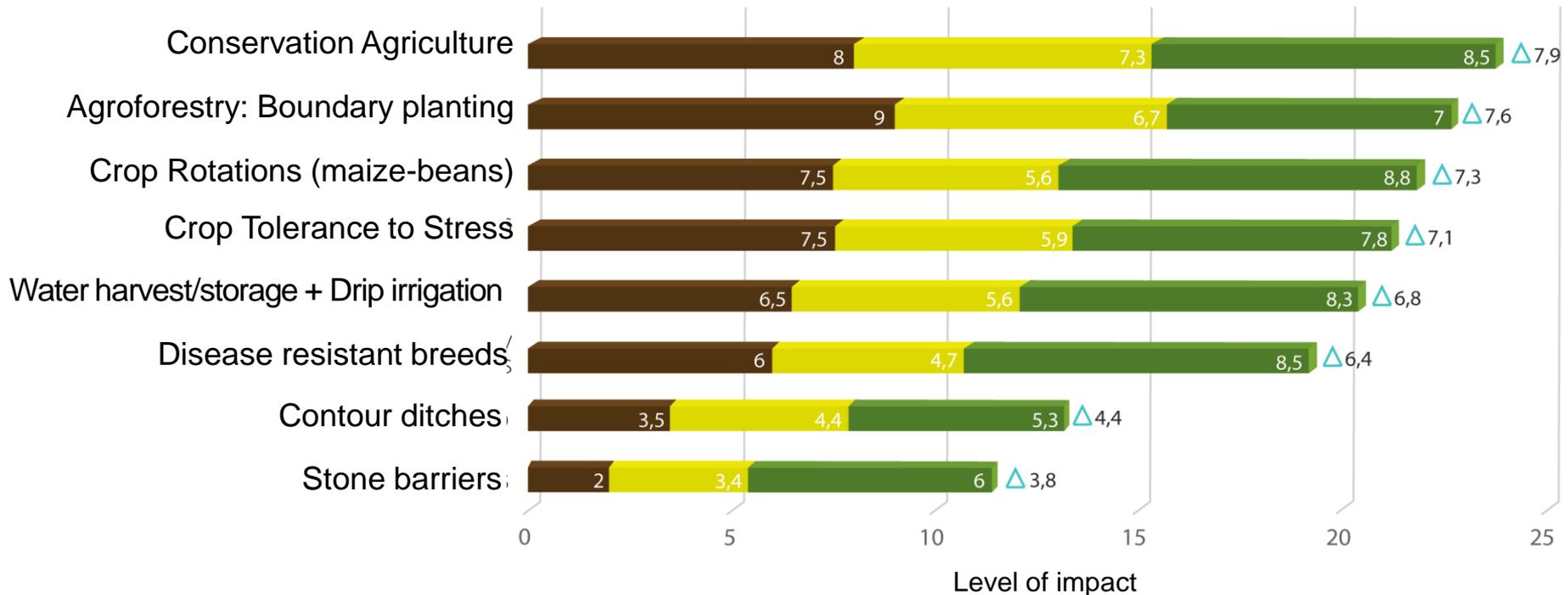
# Key results in Guatemala



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



## Impact of CSA practices on mitigation, adaptation and productivity



**Impact:** 10= positive (very high), 0= no effect, -10= negative

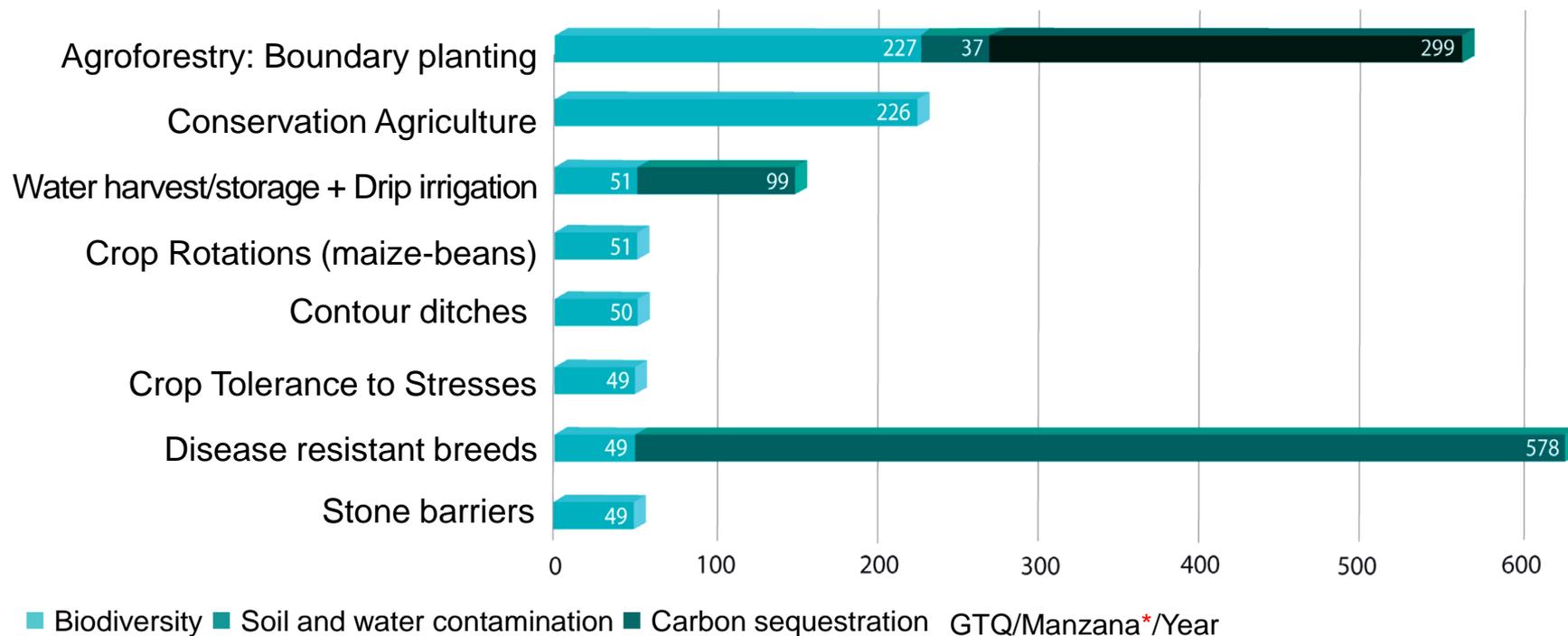
**Pillars:** ■ Mitigation ■ Adaptation ■ Productivity ▲ Average

National stakeholders are able to **identify which are the best CSA options for Guatemala's dry corridor** in order to address adaptation, mitigation and productivity.

# Key results in Guatemala

National stakeholders are able to know what are **the co-benefits associated to CSA options** before implementing them.

## Additional revenue from externalities



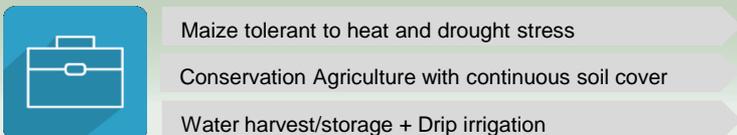
\*In most Central American countries 1 Manzana = 1.72 acres (0.69 ha)  
1 US Dollar (USD) = 7 Guatemalan Quetzal (GTQ)

# Key results in Guatemala

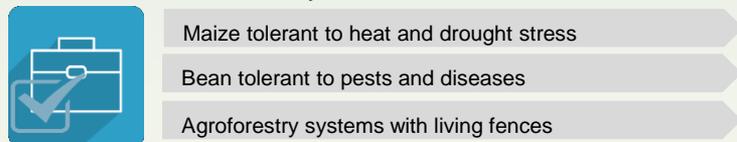
Decision makers are able to compare between different portfolios proposed by farmers, government and researchers.

## Farmers

**Portfolio 1:** Increase the productivity of the seed units through the incorporation of improved seeds and soil and water conservation practices

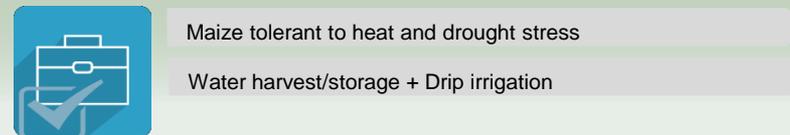


**Portfolio 2:** Ensuring food security through the use of varieties adapted to the conditions of the dry corridor.

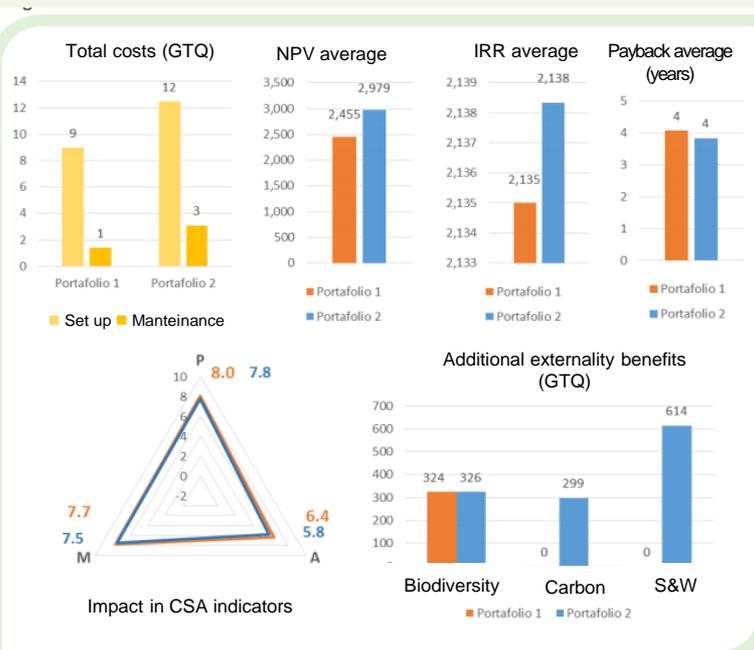
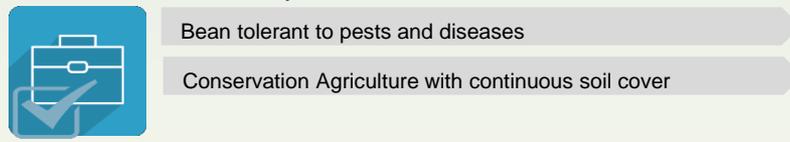


## Government

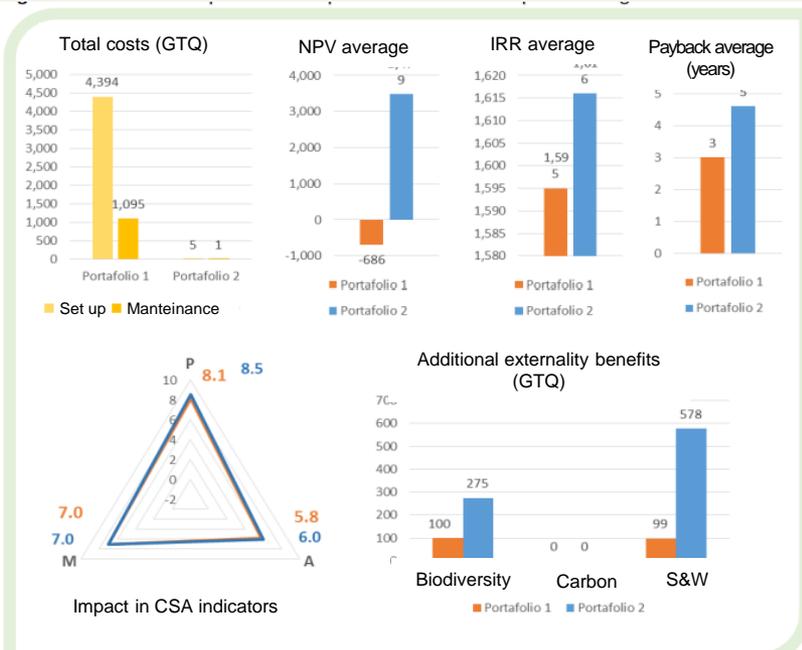
**Portfolio 1:** Increase the productivity of the seed units through the incorporation of improved seeds and soil and water conservation practices



**Portfolio 2:** Ensuring food security through the use of varieties adapted to the conditions of the dry corridor.



*MAGA is using these results to work together with donors and international cooperation to invest in strategic portfolios for facing climate change and variability impacts.*



# CSA framework in Trifinio and Central Nicaragua



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



Prioritization of investments in Climate-Smart Agriculture (CSA)  
in territories where MAP and CCAFS have an impact  
(NicaCentral and Trifinio)



*Major risks in agriculture are related to longer and intense droughts. Food security is being threatened by climate.*

*Practices were categorized into four groups:*

- *Agroforestry systems*
- *Home gardens*
- *Pastures/Livestock*
- *Basic Grains*

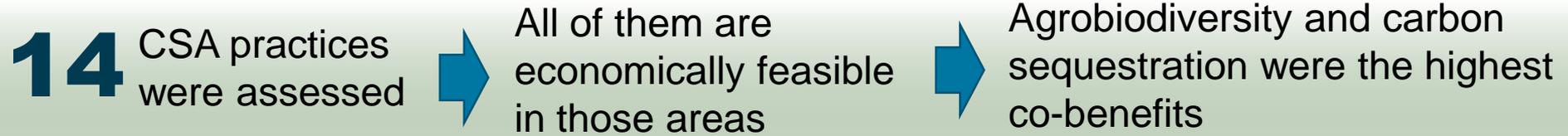


<http://map.catie.ac.cr/asac/>

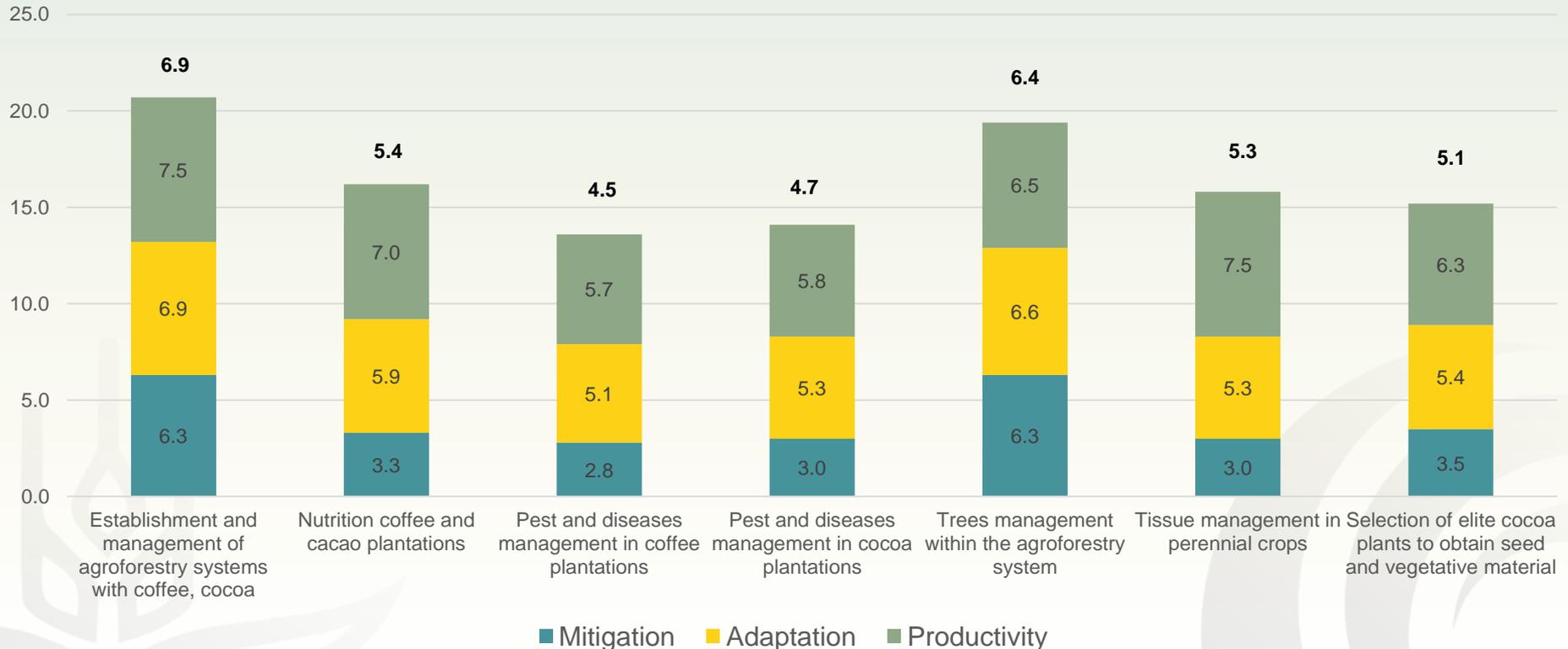
# Key results in Trifinio and Central Nicaragua



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



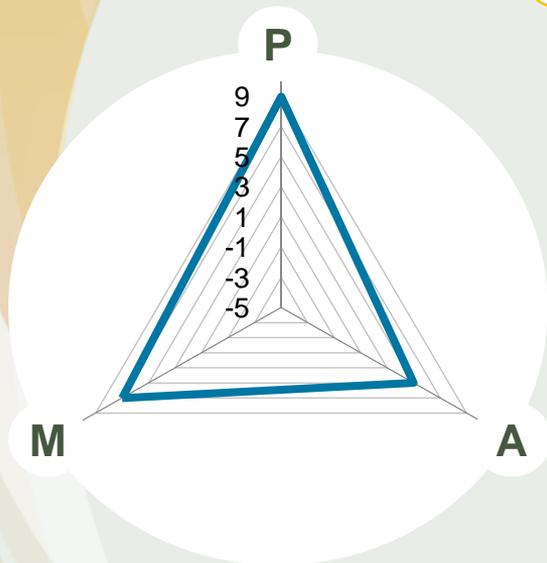
Agroforestry Systems in Central Nicaragua  
Data on bars correspond to averages



# Name of the practice (Prioritized geographic area)

¿What is the impact on CSA pillars?

1 **What it is?**



Level of impact: 10= Very high, 0=No effect, -10=Negative

P: Productivity A: Adaptation M: Mitigation

**Productivity**

- ✓ Benefit A
- ✓ Benefit B

**Adaptation**

- ✓ Benefit A
- ✓ Benefit B

**Mitigation**

- ✓ Benefit A
- ✓ Benefit B

2 **Where can be applied?**

3 **When can be applied?**

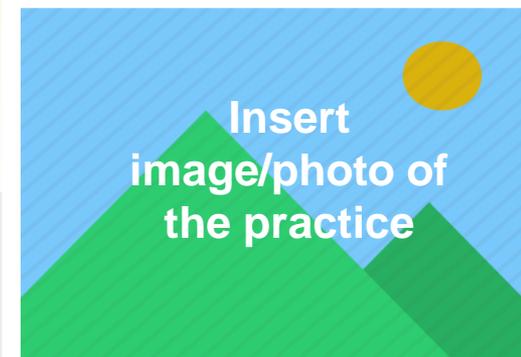
4 **What practices can be complementary?**

5 **Crops of interest:**

6 **Threats faced:**

7 **What barriers hinder its adoption?**

8 **What opportunities facilitate its adoption?**



# CSA-PF in Cauca, Colombia



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



## Cauca River Watershed, Colombia

**HERRAMIENTAS DE PRIORIZACIÓN DE INVERSIÓN EN AGRICULTURA SOSTENIBLE ADAPTADA AL CLIMA (ASAC) EN LA CUENCA ALTA DEL RÍO CAUCA 2015**

**Avanzando hacia la Agricultura Sostenible Adaptada al Clima**  
Néstor Lizaraso y Claudia Patricia Cortés Cortés

Conocimiento de los retos actuales y futuros que enfrenta las comunidades campesinas e indígenas y sus medios de vida en la cuenca alta del río Cauca por causa de la variabilidad y el cambio climático; la empresa de acueducto y Acueductado de Popayán S.A. S.A.P., la Fundación Proceso de Ríos del Pacífico, el Centro Internacional de Agricultura Tropical (CIAT) y el Programa de Investigación de CIAT en Cambio Climático, Agronomía y Seguridad Alimentaria (CCAS), se reunieron de nuevo en un Segundo Convenio para avanzar en el camino de implementación del Marco de Priorización de Agricultura Sostenible Adaptada al Clima (ASAC).

Esta iniciativa que ya había generado consenso concluye en un primer convenio, de un paso adelante hacia la construcción de un proceso participativo que permita priorizar prácticas agrícolas sostenibles.

Adaptado al Clima. En esta región representativa de los pueblos indígenas de Quimbaya, Poblazón y Puracé, las asociaciones campesinas, asoproquintana e intercomunal de asociación de los pueblos indígenas y las administraciones municipales de Popayán y Puracé, miembros de las Mesas Técnicas de Instituciones Políticas con la Secretaría de Agricultura, Universidad del Cauca, dialogaron en torno al convenio de ASAC y su implementación. Los participantes, representantes de las comunidades e indígenas, lo que se permite entender evaluar la importancia que tiene cada por dentro de la actividad agropecuaria de la zona.

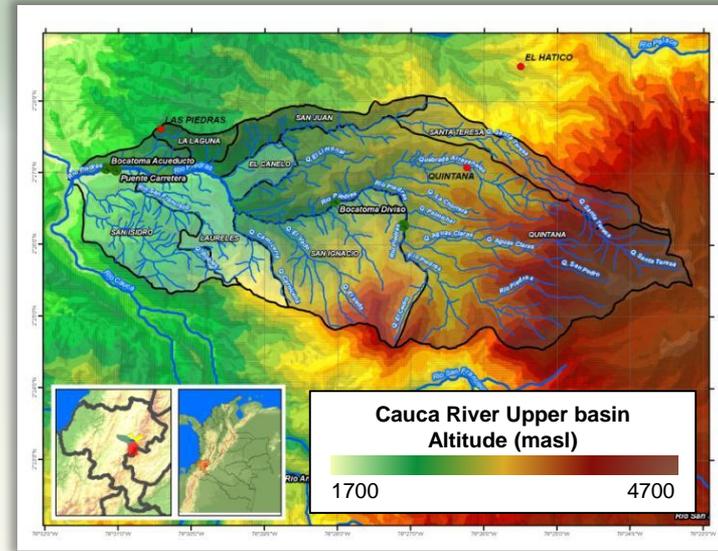
Los participantes, bien conocedores del contexto local y de su gran diversidad agropecuaria, también tuvieron un espacio para plantear prioridades agropecuarias que atraerán al sector agropecuario de la región así como los sistemas productivos de mayor relevancia para su seguridad alimentaria, las buenas cosechas, el maíz y la ganadería lechera se destacaron durante el convenio, entre otros temas que se trataron en la generación de productos derivados que representan un valor agregado a la producción.

**Resultados del ASAC**

El 31% de los participantes consideraron que el sector agropecuario es el más importante para la seguridad alimentaria de la zona.

El 27% de los participantes consideraron que el sector agropecuario es el más importante para la seguridad alimentaria de la zona.

El 40% de los participantes consideraron que el sector agropecuario es el más importante para la seguridad alimentaria de la zona.



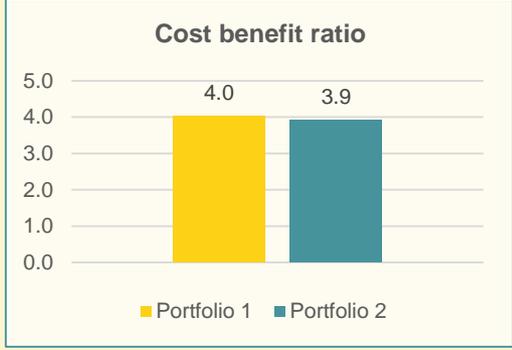
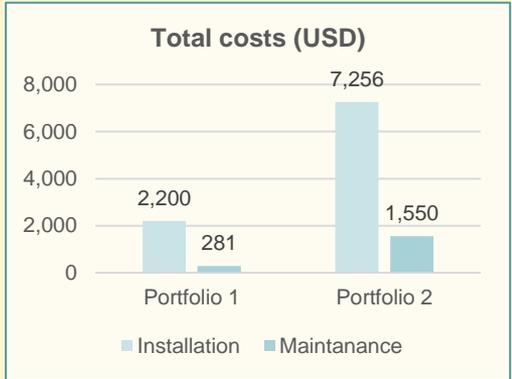
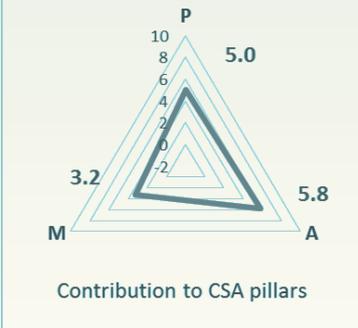
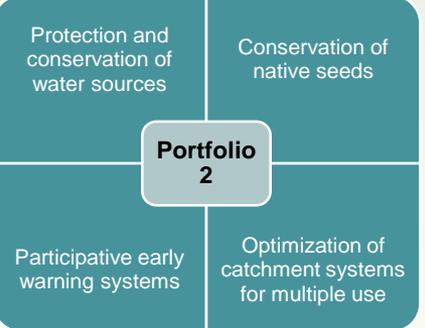
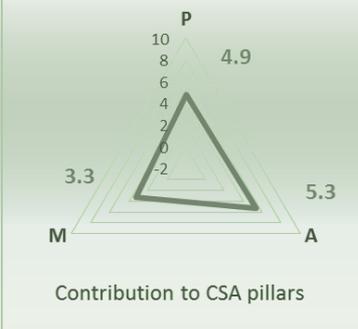
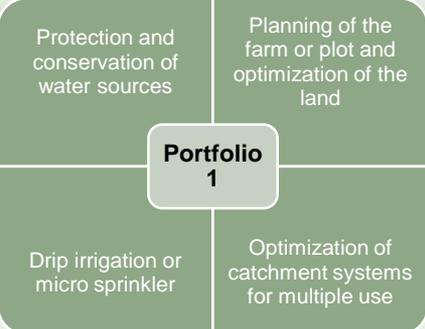
The participatory process included stakeholders such as:

- Indigenous communities: Quintana, Poblazón and Puracé;
- Farmers associations: Asocampo, Asoproquintana and Arpam;
- Community committees El Hogar and PISOJÉ villages;
- Municipal administration of Popayán y Puracé;
- Inter-sectoral Roundtables such as Secretariat of Agriculture, Universities, NGOs.

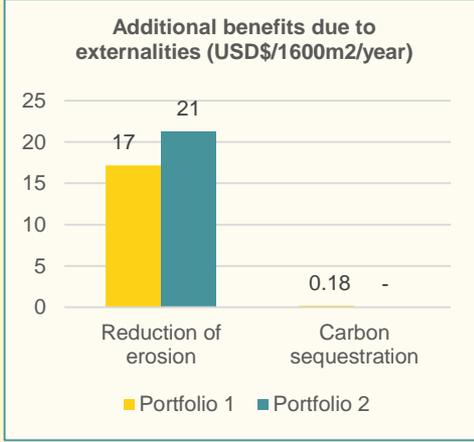


# Key results in Cauca, Colombia

## CSA portfolios for drought season



Communities in Cauca River Watershed have additional inputs to decide on what portfolio to implement when facing a drought season.



They are also aware on how they are increasing their resilience to climate change.

For the specific context of Cauca, two sets of portfolios were considered, based on main risks: drought and floods.



Major agricultural risks affect mainly food security and livelihoods



## Stakeholders involvement across scales

- *Provides feedback and learnings to strengthen the tool but mostly to be able to adjust it in order to tailor context specific needs.*
- *Provides different views in order to support a holistic approach.*



## Different contexts, different challenges

- *Not every community/country/region has the same challenges, the tool is designed to capture those specificities.*



## Planning for a changing climate in agriculture is a common challenge

- *Farmers are unable to plan as they used to in past decades, due to changes in climate. This challenge is being experienced in most of rural areas across the globe.*



## Agro-climatic risks can be reduced through the implementation of CSA

- *Learning how to select the most appropriate practices given current and future climate, agro-ecological and socioeconomic characteristics is key to mitigate associated risks to agricultural systems and provide inputs for planning and decision making.*

# Thank you



RESEARCH PROGRAM ON  
**Climate Change,  
Agriculture and  
Food Security**



Email: [CIAT-CCAFSAmericaLatina@cgiar.org](mailto:CIAT-CCAFSAmericaLatina@cgiar.org)

Twitter: [@CGIARClimate\\_LA](https://twitter.com/CGIARClimate_LA)



Learn more about the  
approach:  
<http://bit.ly/CSA-PF>



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



# Questions & Answers

