

Monitoring outcomes of climate-smart agricultural options at multiple levels: understanding adoption, synergies and tradeoffs



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security

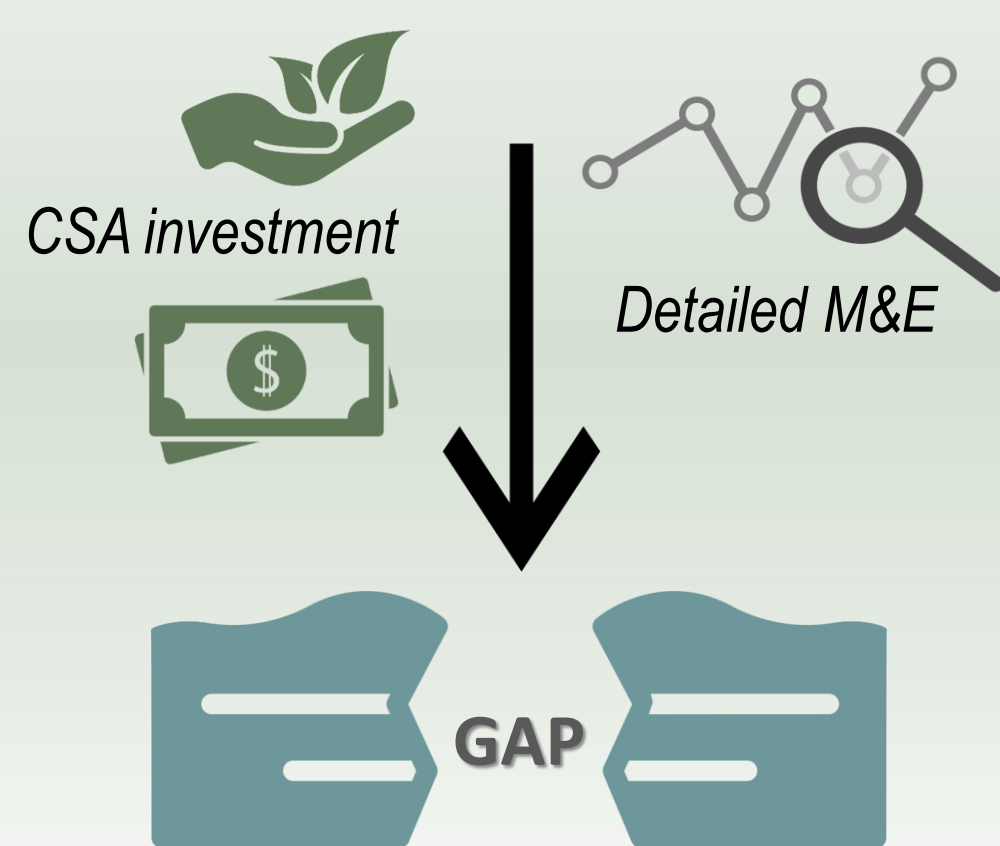


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THE PROBLEM



RESEARCH QUESTIONS

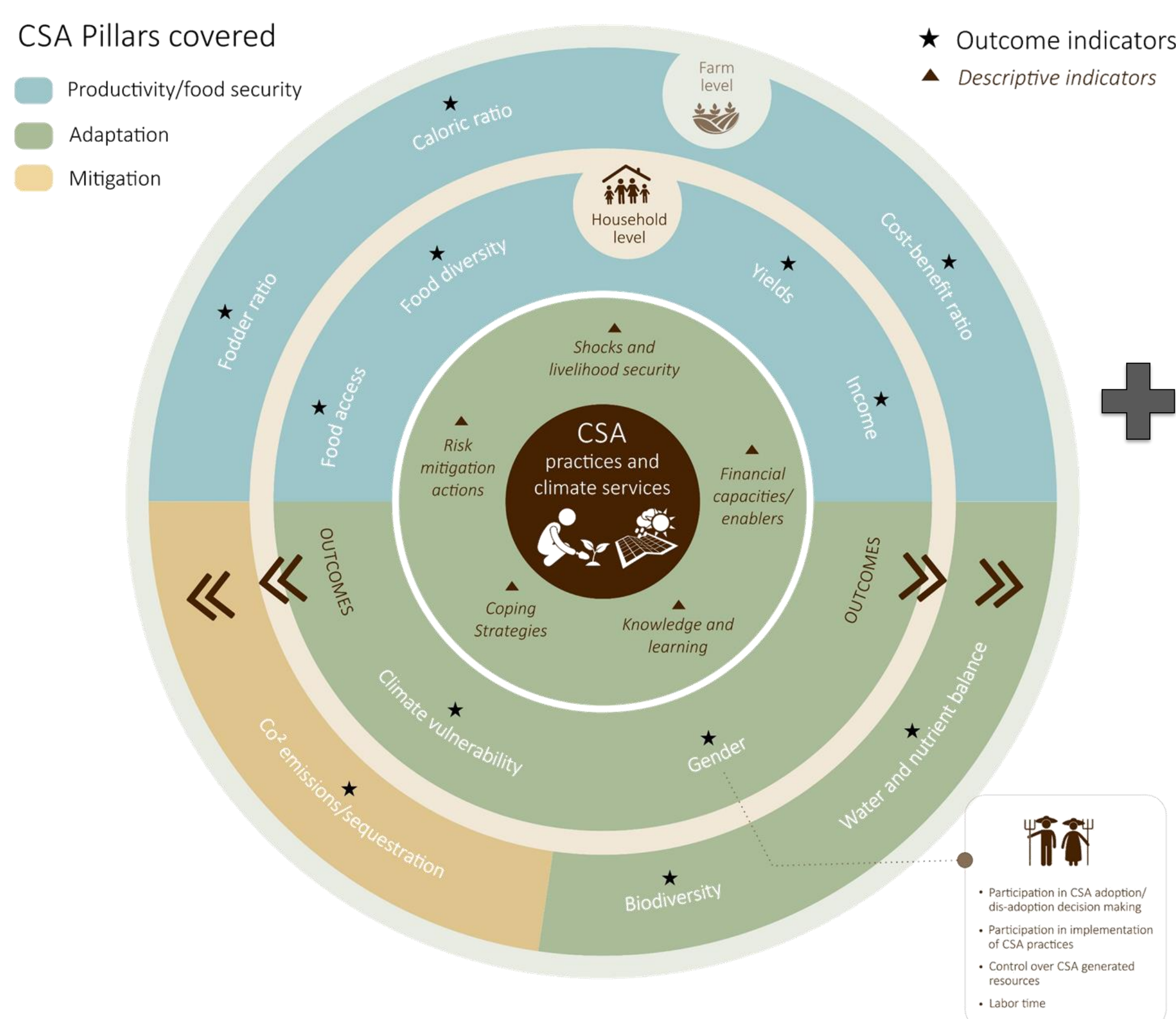
- Who accesses/adopts which Climate-smart technologies, practices or climate information service? Which are their motivations and constraining factors?
- Which are the perceived effects of CSA options on households' food/livelihood security and adaptive capacity?
- How is CSA adoption affecting men/women farmers' participation in decision-making, implementation, labor and access to resources?
- Which are the performances, synergies and trade-offs between Productivity, Adaptation and Mitigation benefits at farm level?



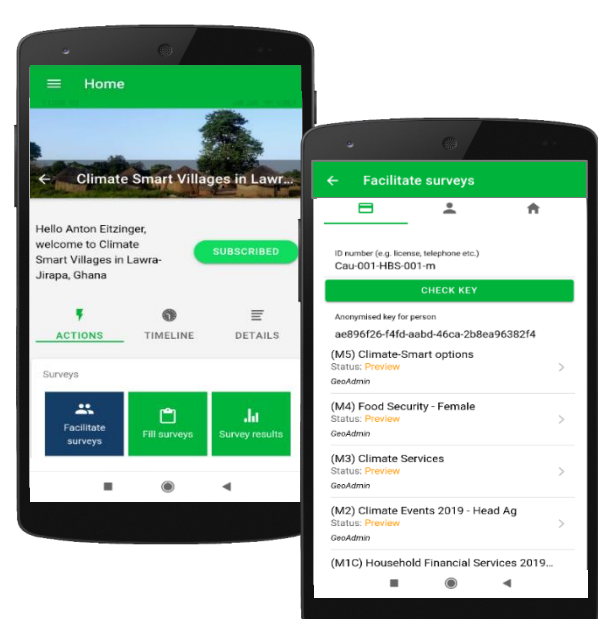
Climate smart-villages' network

Participatory evaluation of locally and socially relevant climate-smart practices

A Multilevel CSA Monitoring Framework



Geofarmer App



- Cost effective
- Almost real-time
- Standard questionnaire calibrated across 9 different agro ecologies (LAM, Africa and Asia)

1. HOW ADOPTS WHAT ?

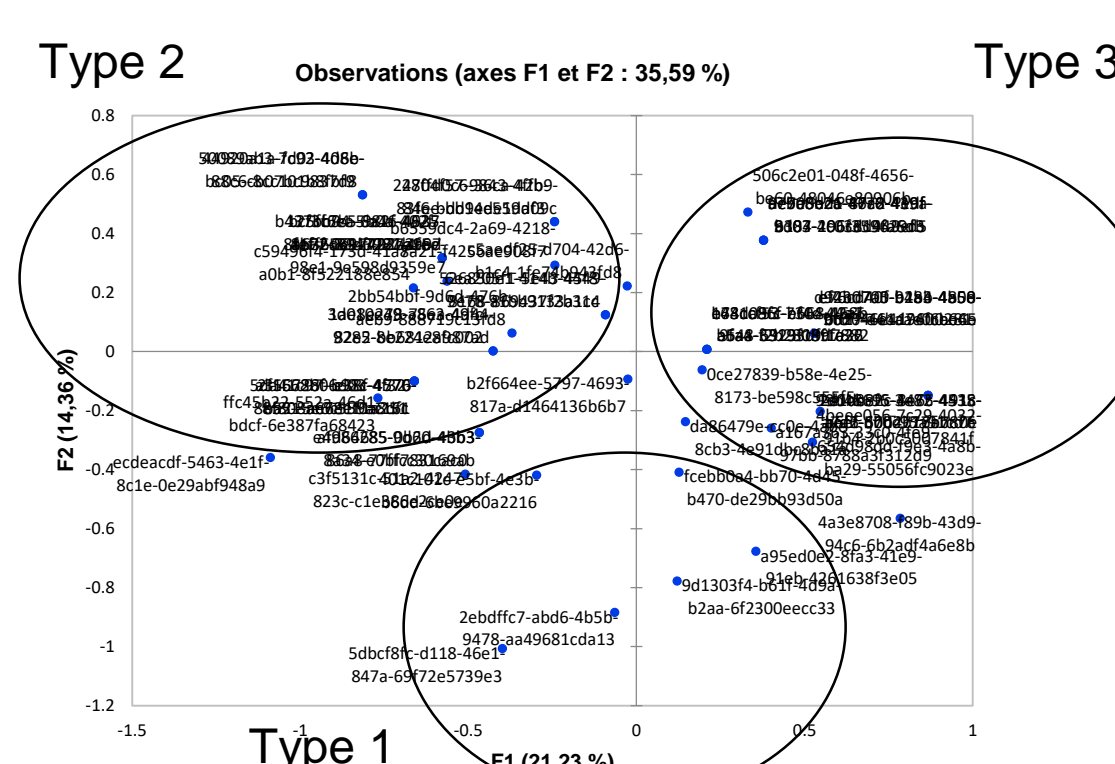


Fig 1. Multiple correspondence analysis to assess households' adoption types

- Household (T2): bigger sizes (>10 members), higher farm area (>9ha), additional income from remittance and accesses food from on-farm production.
- Household (T3): smaller area (<6ha), don't own their land, get main income from remittance and food from community
- Household (T1): heterogeneous farm size, higher number of members participating in on-farm activities and higher spouse education level



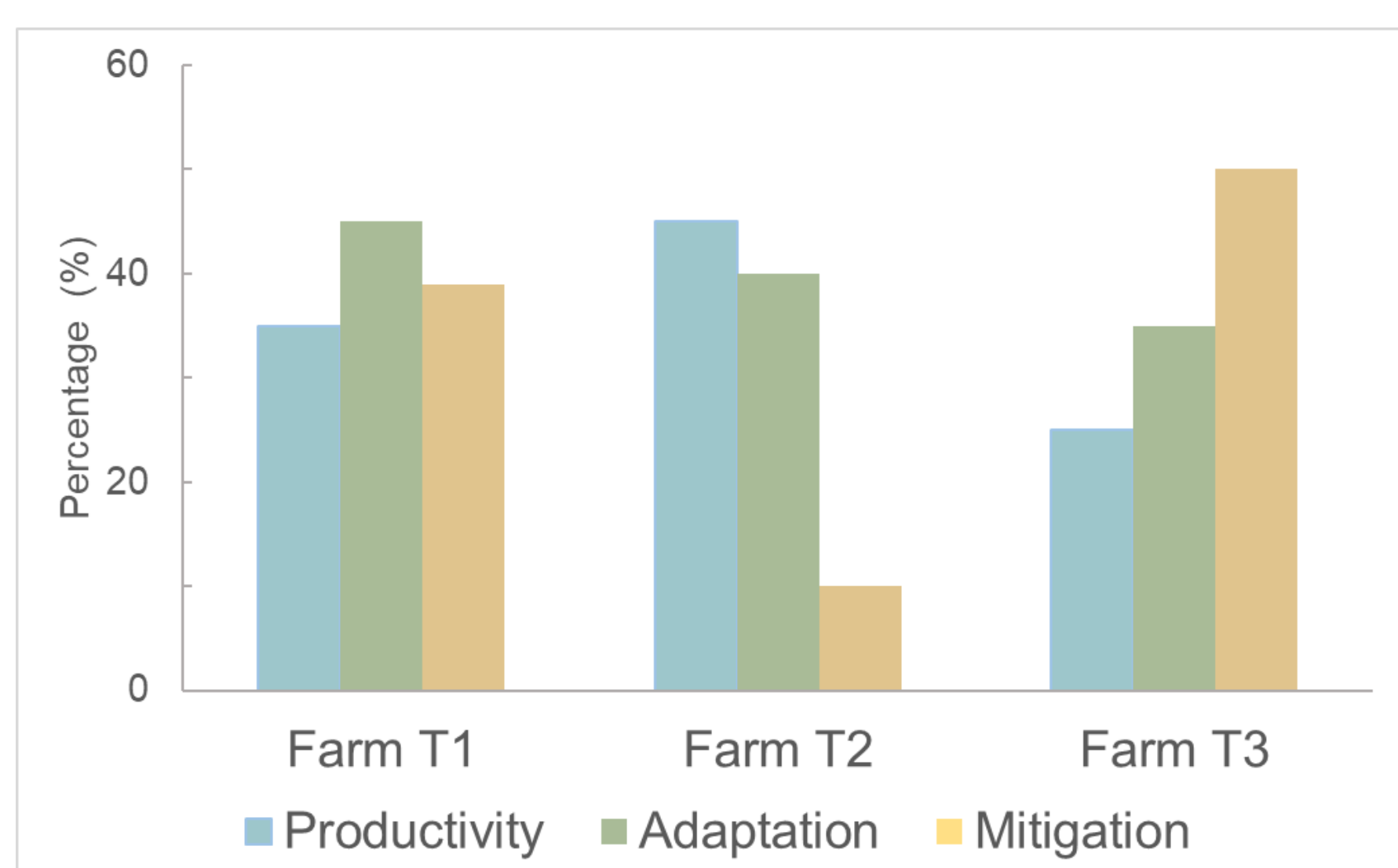
	Crop rotation	Ties ridging	Organic fertilizer	Intercropping	Improved varieties	Earth bunds
Adopting hh (#)	181	170	157	133	141	31
Male-headed	94%	88%	83%	68%	74%	18%
Female-headed	97%	90%	80%	73%	70%	7%
Type 1 (14%)	93%	96%	67%	48%	81%	52%
Type 2 (46%)	100%	98%	90%	67%	86%	10%
Type 3 (39%)	88%	74%	80%	80%	55%	9%

- Top 5 practices: commonly adopted by male and women-headed households.
- All household types: high adoption levels, T3: lower values for earth bunds and improved varieties

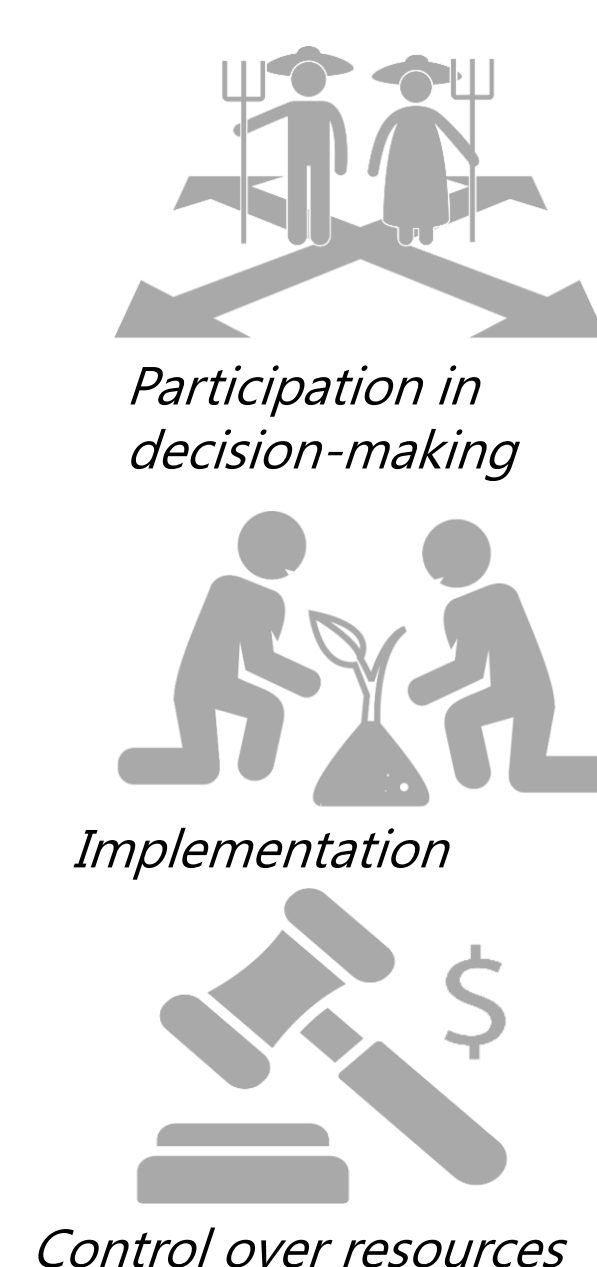
This framework will support field practitioners in tracking over time, the progress and dynamic changes in adoption of CSA options and their related impacts at household and farm level. It brings:

- A set of DESCRIPTIVE indicators covering 5 enabling dimensions
- 10 Household-level CORE indicators to assess perceived context-specific effects of CSA practices on Food/Livelihood security, Climate vulnerability and GENDER aspects.
- 7 Farm-level CORE indicators to determine performance, synergies and trade-offs among the three CSA pillars.

5. FARM PERFORMANCE, SYNERGIES AND TRADE-OFFS



4. EFFECTS ON GENDER



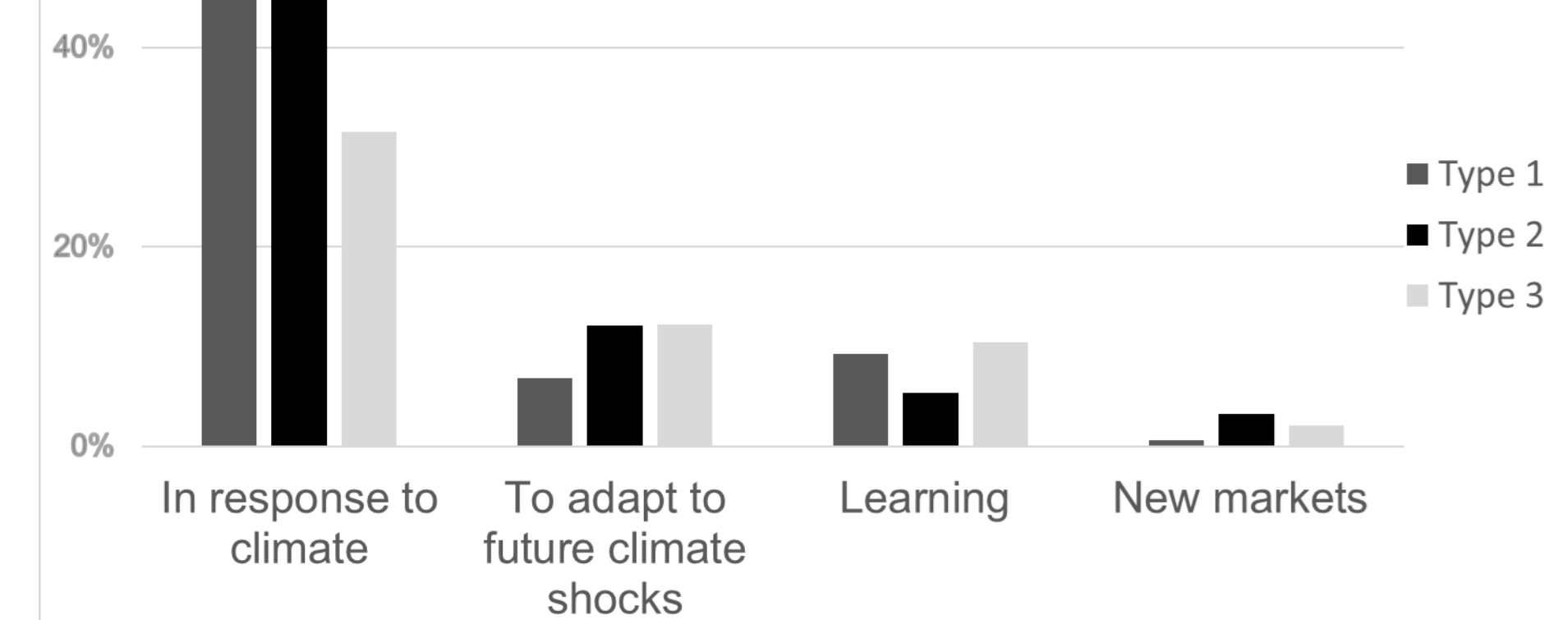
Consistently **Men** reported that they decide **ALONE** on CSA implementation (50-100% depending on the practice) while **Women** a **JOINED DECISION** (44-72%).

Men reported having done **MOST** of the CSA implementation work (70-79%) **Women** said they mainly **HELPED** (53-64%).

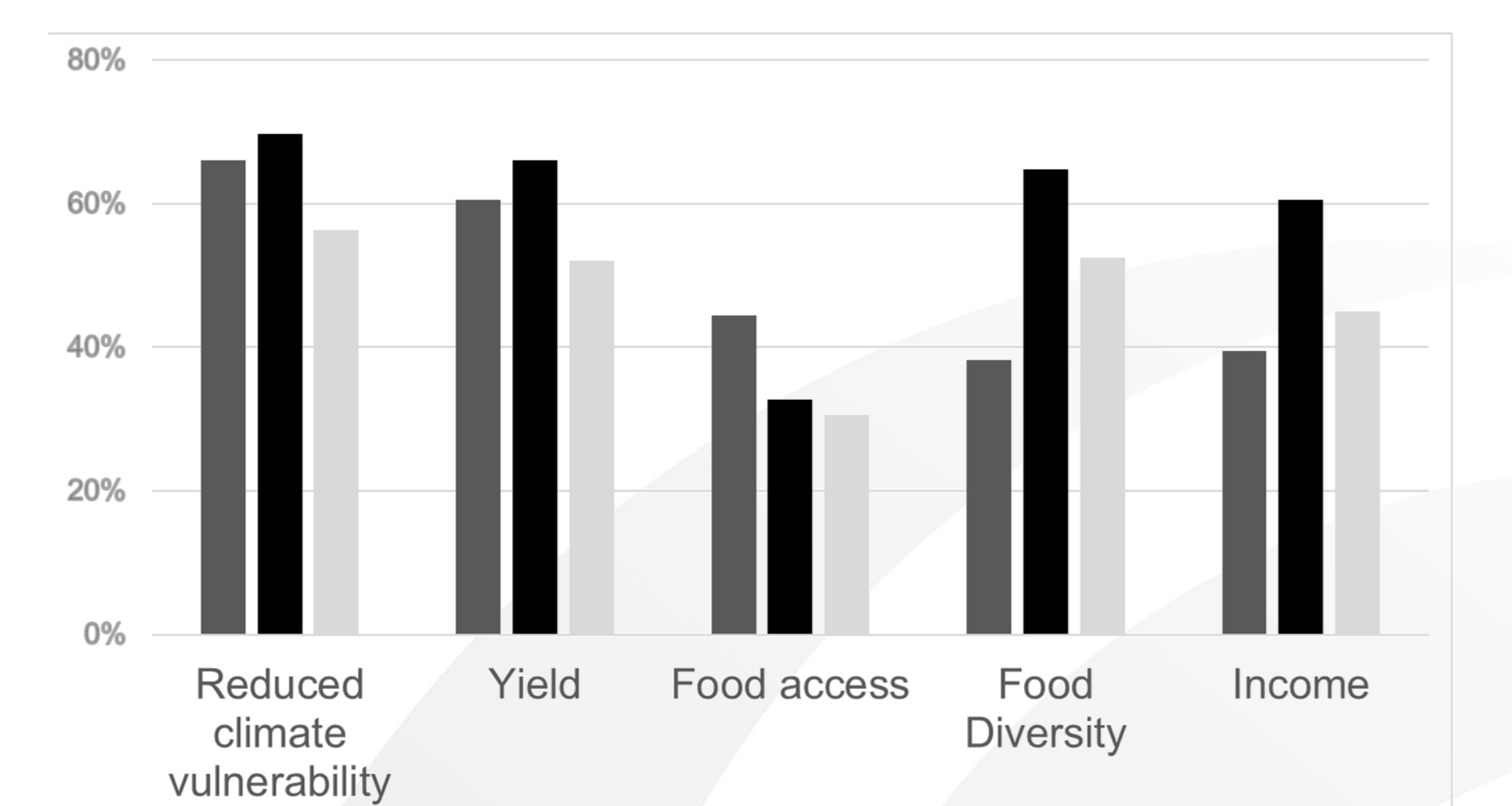
Both men (78-96%) and **women** (74-100%) reported having control/access to CSA generated resources

	Men	Women
Crop rotation	None (57%)	None (44%)
Ties ridging	+ (57%)	+ (57%)
Organic fertilizer	+ (72%)	+ (76%)
Intercropping	- (44%)	- (44%)
Improved varieties	- (42%)	- (43%)
Earth bund	+ (79%)	+ (64%)

2. WHY THEY ADOPT ?



3. PERCEIVED HOUSEHOLD OUTCOMES



IMPLEMENTATION IN THE FIELD



REFERENCES

Eitzinger A., Bartling, M., Atzmanstorfer, K., Zurita-Arthos, L., Mwongera, C., Läderach, P., Bonilla-Findji, O., Binder, C.R., Cock, J., Jarvis, A. (2019) *GeoFarmer: A monitoring and feedback system for agricultural development projects*, Computers and Electronics in Agriculture 158 109–121. <https://hdl.handle.net/10568/99329>

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