

Household Models and Food Shocks

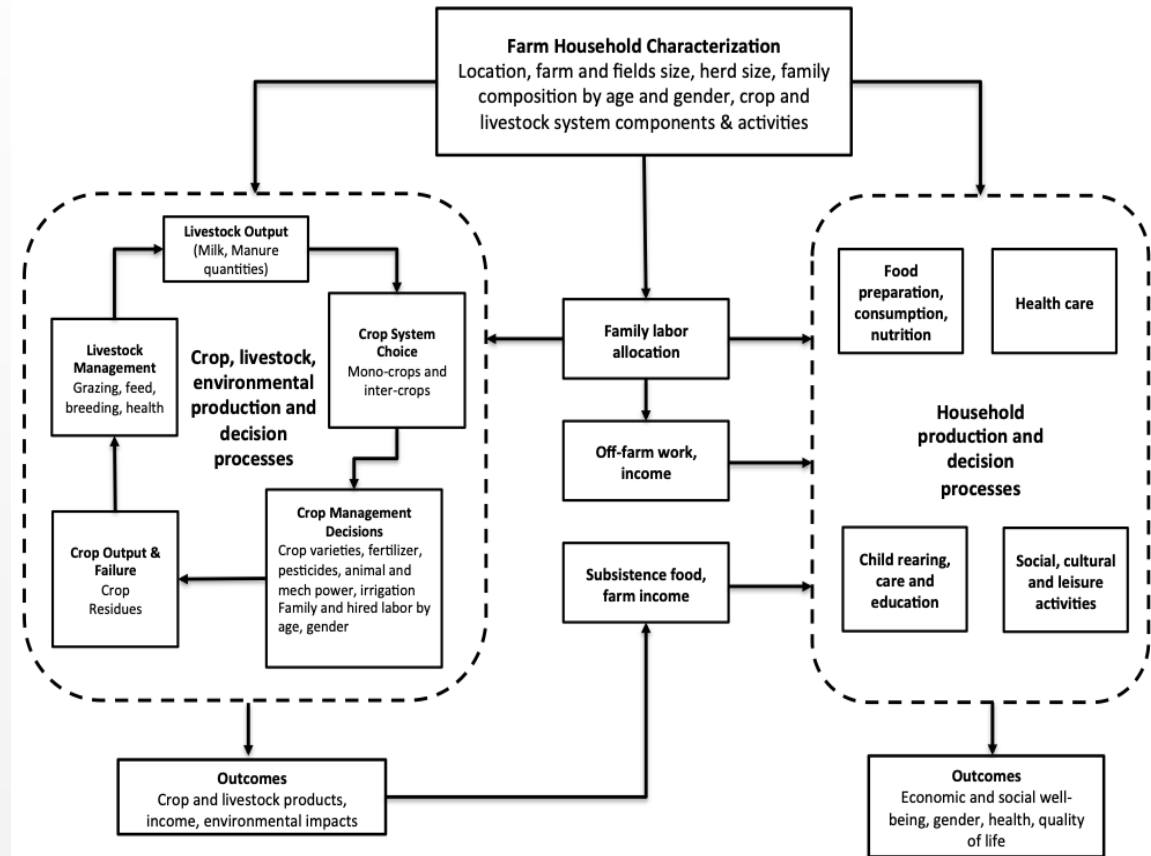
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Modeling food shocks

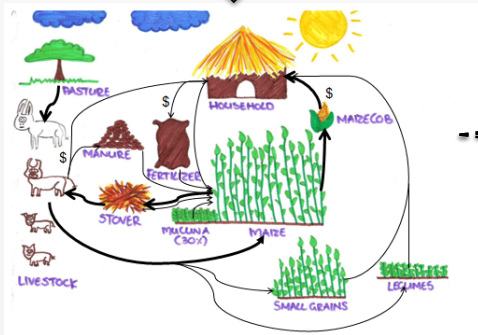
- Model typology
 - Optimization
 - Simulation
 - System dynamic
- Household typology
 - Urban vs rural
 - Vulnerability (income, health, wealth, debt, ...)
 - Farm: subsistence vs market (net buyer, seller)
- Transitory (drought) vs permanent (death of HH head)
- Anticipated or unanticipated
- Heterogeneity
- System dynamics
- Data: obs vs experiments
- Impact indicators: economic (income, wealth, poverty); health & nutrition (consumption, food insecurity, biometrics, etc); environment (water, GHGs, etc)



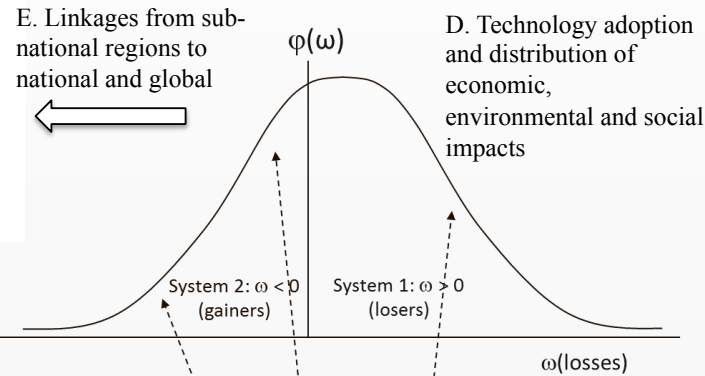
Protocol-Based Regional Integrated Assessment: Food Shocks analog to Climate Change Impacts?



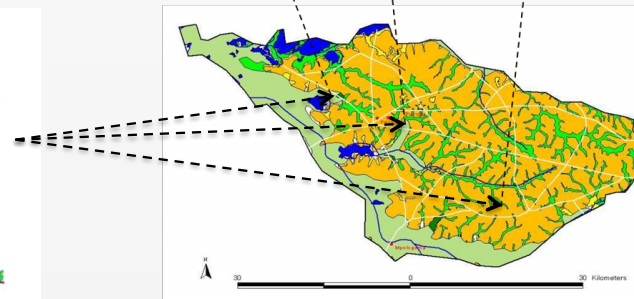
A. Global & national prices, productivity and representative ag pathways and scenarios



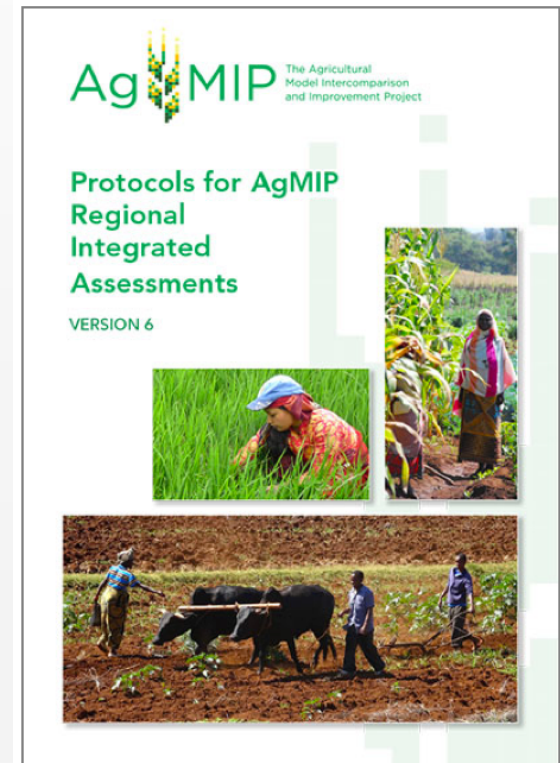
B. Complex farm household systems



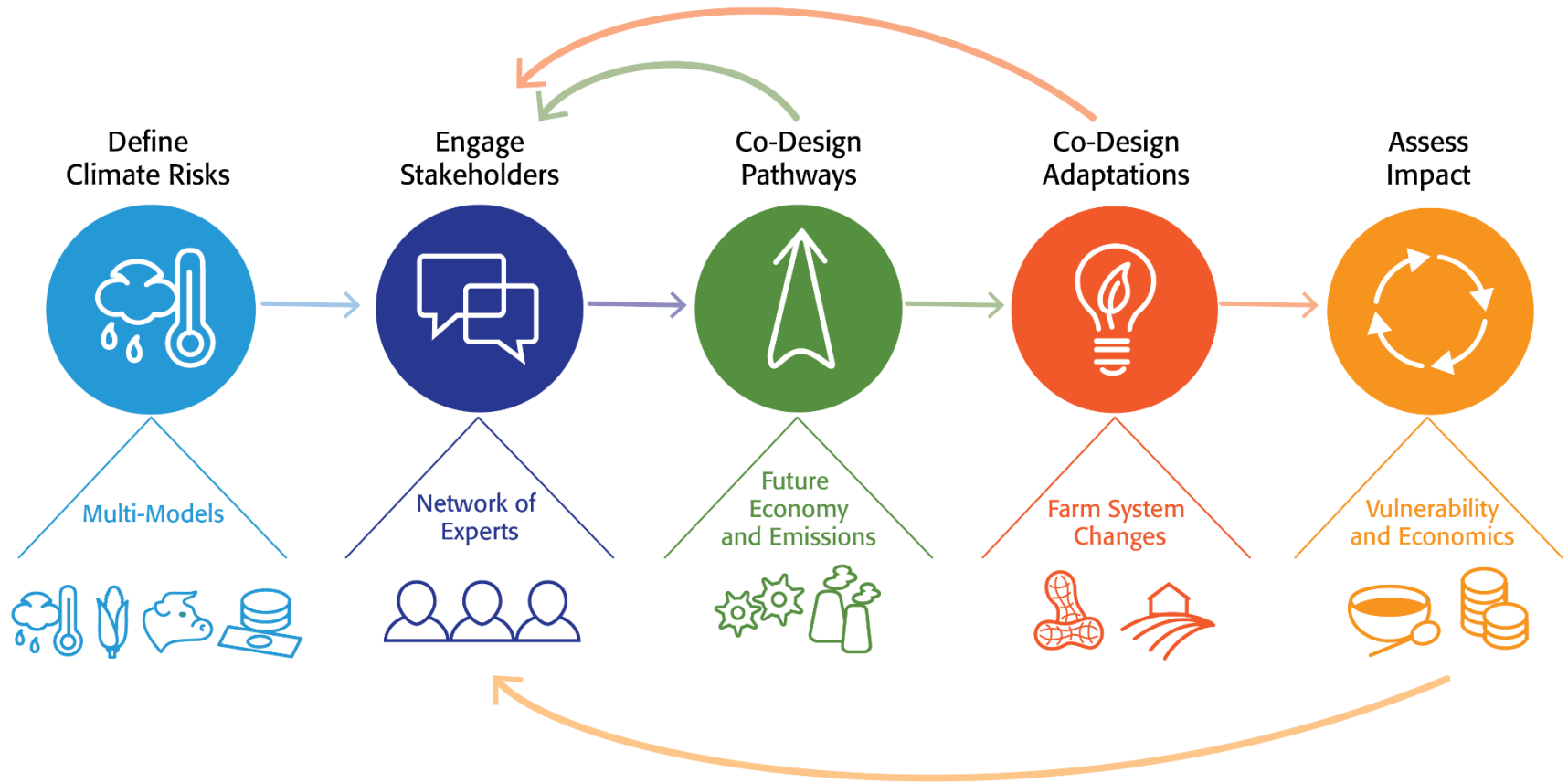
D. Technology adoption and distribution of economic, environmental and social impacts



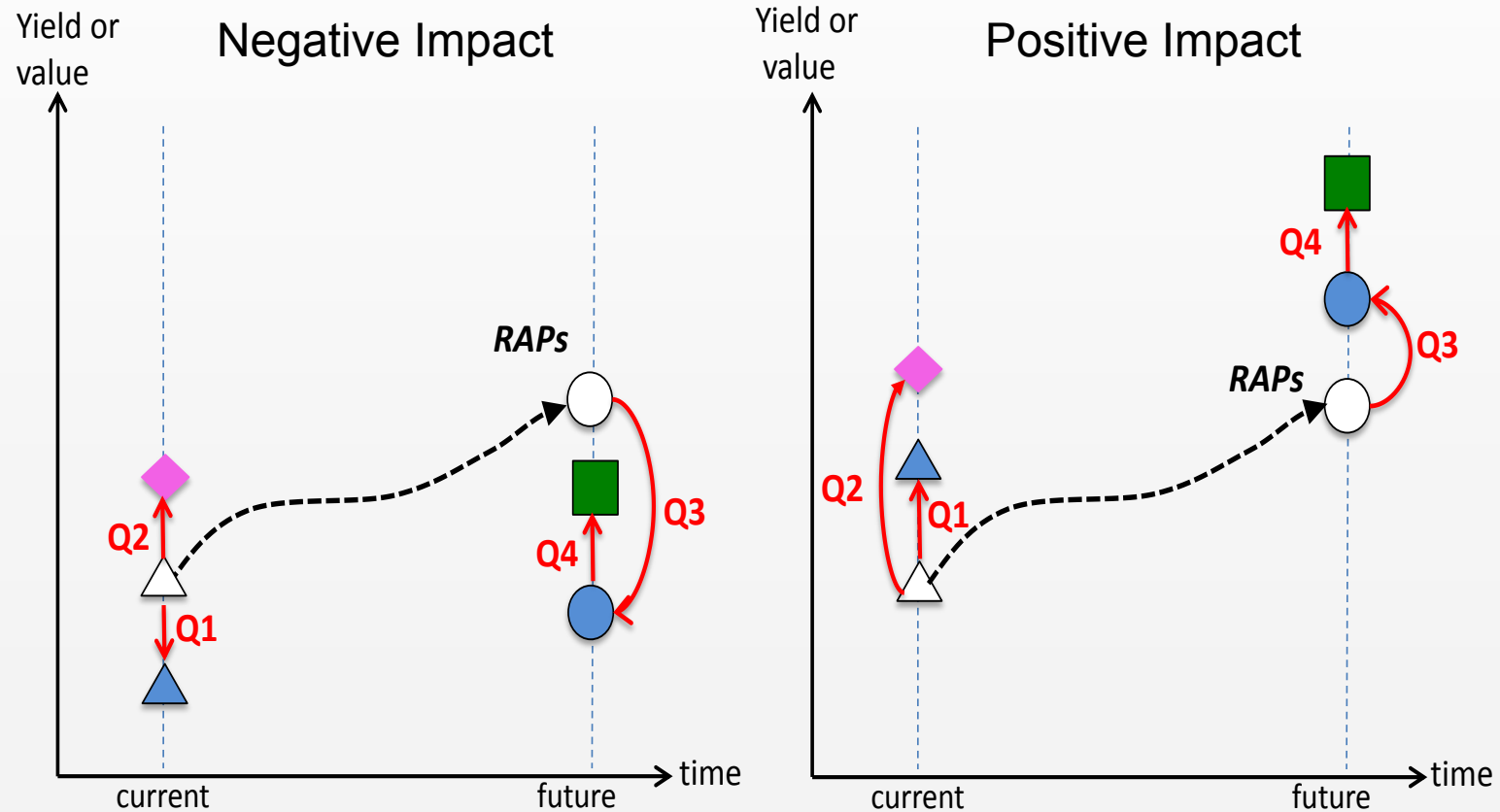
C. Heterogeneous regions



Participatory Approach to RIA

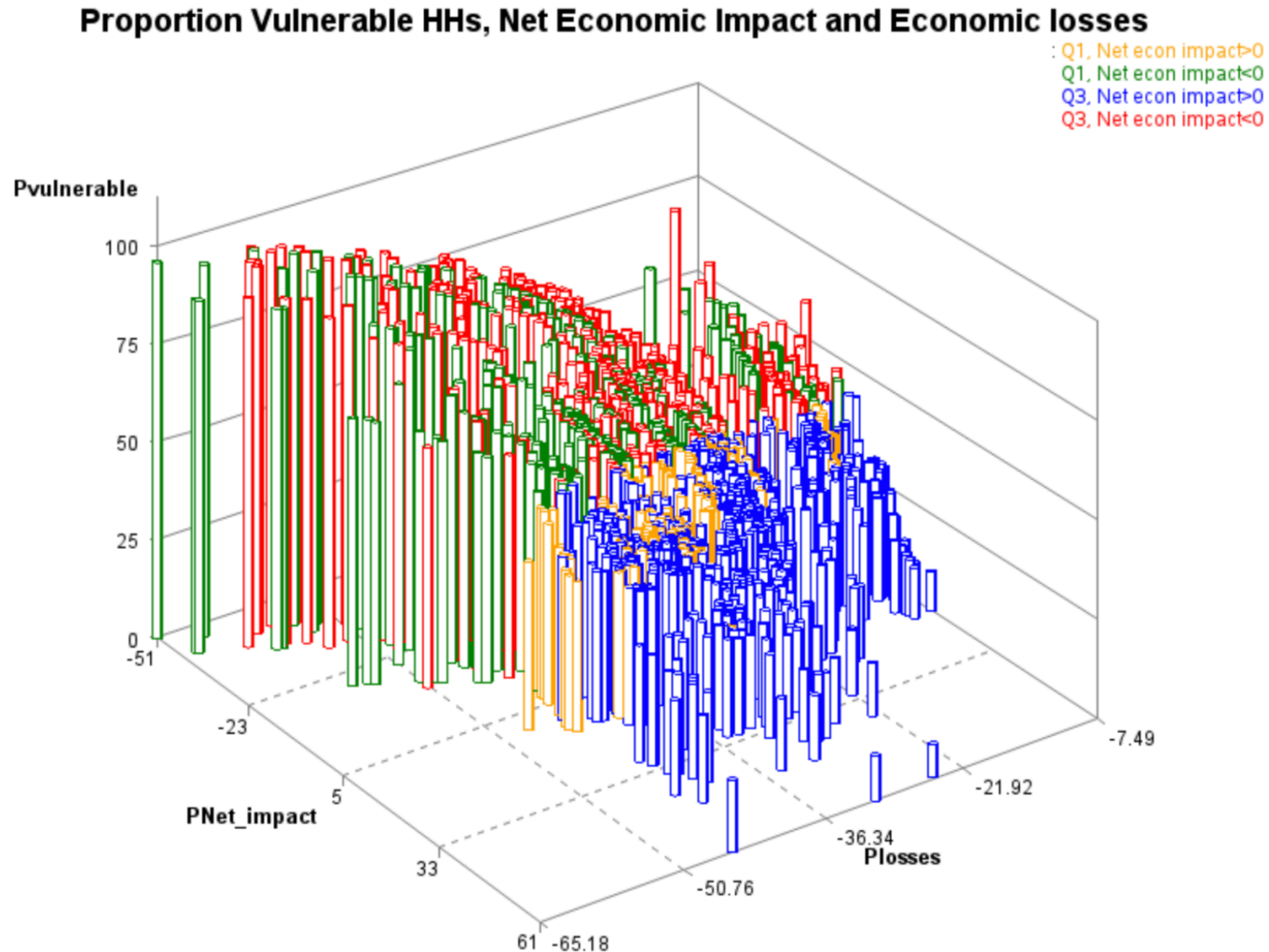


RIA Experimental Design and Core Questions: Analog to “Food Shocks”



Key Messages: CC Impacts

- Winners and losers in all regions
- Vulnerability can be high even when average impacts are small or positive



Impacts of legume inoculant technology adoption on food insecurity, using the income-based indicator in the TOA-MD model analysis (Tanzania)

	High Productivity			Low Productivity			All households
	Crop Only	Mixed	Majority Per Crops	Crop Only	Mixed	Majority Per Crops	
Adoption Rate (%)							
Households	49.2	51.6	42.4	44.4	49.1	34.9	43.9
Food insecure (%)							
Base	57	56.9	40.2	63.6	68.3	54.3	58.8
Adopters	39.8	32.2	30.7	46.9	41.5	44	42.5
Non-Adopters	59.3	58.3	43.3	66.6	68.8	57.1	61.3
Total	49.7	44.8	38	57.8	55.4	52.5	52.9
Counterfactual (%)							
Adopters	54.4	55.2	36.1	59.2	67.5	49.2	55.1
Non-Adopters	74	80.7	52.1	79.3	88.2	65.3	74.3
Treatment Effects (%)							
ATE	-1.3	-4.4	2.1	-1.4	-5.7	3.1	-0.7
TT	-14.5	-23.1	-5.5	-12.4	-26	-5.2	-12.6
TU	14.7	22.4	8.8	12.8	19.4	8.2	13.1
Treatment Effects (% of %)							
ATE	-2.2	-7.7	5.2	-2.3	-8.3	5.7	-1.1
TT	-26.7	-41.8	-15.2	-20.8	-38.5	-10.6	-22.9
TU	25.8	39.4	21.9	20.1	28.4	15.2	22.2