



Australia Awards

Education and Gender-Based Perceptions and Adaptation to Climate Change

Insights from Rice Farmers in Battambang Province, Cambodia

Presented by Dr. Ngoy Yuthnea

Senior Lecturer and Researcher, Royal University of Phnom Penh

Phnom Penh, August 1, 2026



Contents

- 01 Context and Rationale
- 02 Research Objectives
- 03 Research Methodology
- 04 Findings
- 05 Conclusion and Discussion
- 06 Q&A



CONTEXT AND RATIONALE

Cambodia's “Rice Bowl” is on the frontline of climate volatility

Battambang is Cambodia's leading rice producer but sits beside the Tonle Sap's dramatic seasonal water swings-flash floods, then prolonged drought.



The Royal Government's Pentagonal Strategy (Phase I) puts “People” and “human capital” first, yet intra-household barriers to climate adaptation remain under-researched.

This study seeks to investigate whether husbands and wives perceive climate risk the same way, and education level determine who adapts — and who is left behind?

RESEARCH FOCUS

Aim: to evaluate the climate-resilience of smallholder rice farmers in Battambang Province, Cambodia, by analyzing the intersection of gendered risk perception, educational attainment, and technical adaptation to CSA.

Do perceptions of climate change vary by gender and education?

How have climate extremes affected household stability and food security?

What socio-economic, institutional, and cognitive factors drive or block farmers' adoption of CSA practices?



RESEARCH DESIGN

A mixed-methods, intra-household comparative design

01

Spousal-Pair Sampling

200 respondents (100 husband–wife pairs) across two Tonle Sap communes: Kompong Preah & Kompong Prieng in Battambang Province, Cambodia

02

Independent Interviews

Husbands and wives interviewed simultaneously but separately, minimizing social-desirability bias

03

Kappa Statistics

Measures spousal agreement on flood, drought, heat and rainfall perceptions

04

Probit Regression

Identifies the drivers of Climate-Smart Agriculture (stress-tolerant rice) adoption

DATA SAMPLING

A snapshot of the sample

200

Respondents

100 spousal pairs

2

**Tonle Sap
Communes**

*Kompong Preah &
Kompong Prieng*

**10+
yrs**

**Farming residency
required**

*for longitudinal
accuracy*

46.3

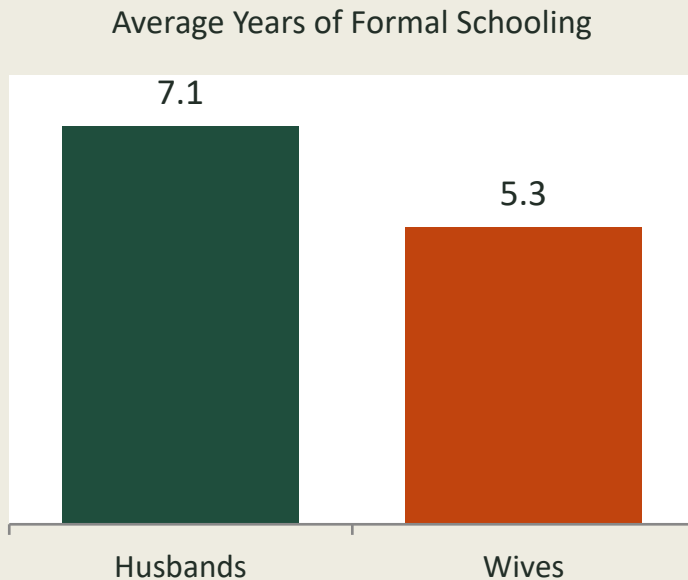
**Average
respondent age**

*avg. 26 years farming
experience*

92% of households depend on rice as their primary income — with an average landholding of just 3.2 hectares, leaving little buffer when climate shocks hit.

BASELINE FINDINGS

A structural education gap sets the stage for unequal adaptation



78% of land is owned

but formal titles rarely list women,
a hidden barrier to credit



Only 12% non-farm income

leaving households with almost no
economic shock absorber



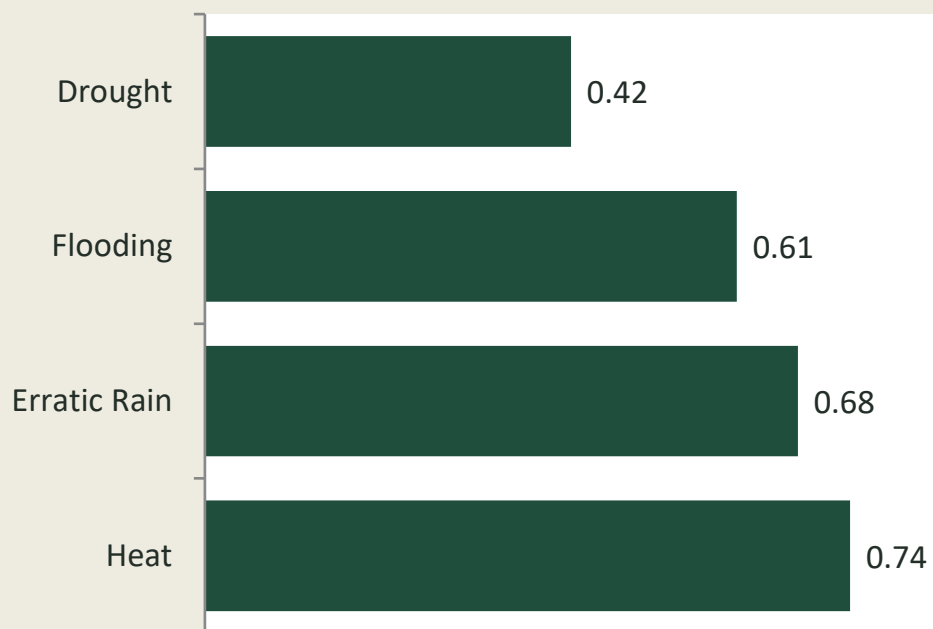
Only 24% of wives

hold the final say in major agricultural
purchases, the “Labor-Agency Paradox”

*A statistically significant 1.8-year gap ($p < 0.05$)
limits wives' access to technical CSA manuals
and formal credit applications.*

FINDING 1: RISK PERCEPTION

Spouses agree on floods and heat, but not on drought



Landis & Koch scale: $k > 0.60$ = substantial agreement
 $k = 0.41\text{--}0.60$ = moderate agreement

The Drought Disparity

82%

of wives flagged rising drought risk

68%

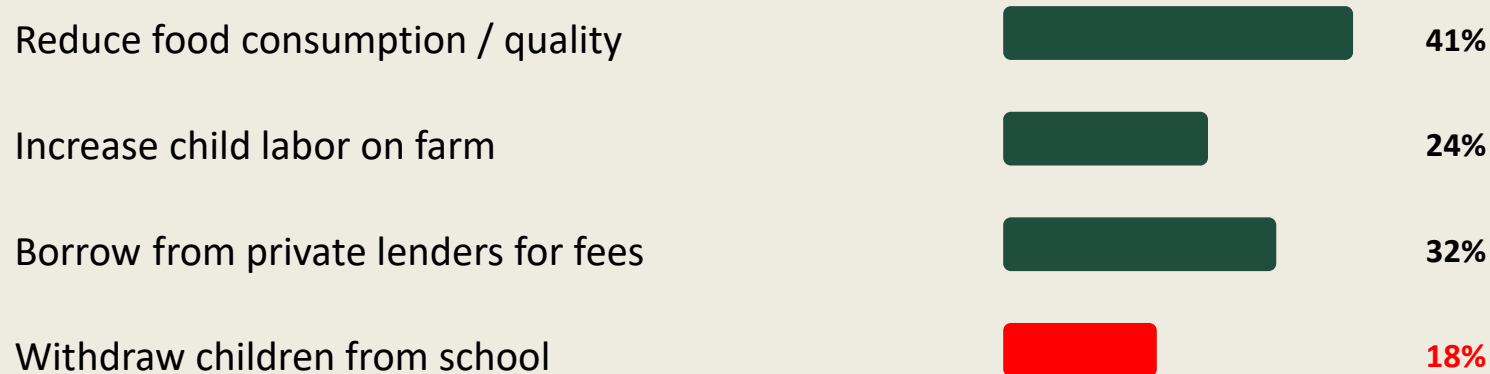
of husbands agreed

Women manage household water and home gardens, making them earlier “detectors” of slow-onset drought — insight that can be lost if only one spouse is consulted.

FINDING 2: HUMAN CAPITAL

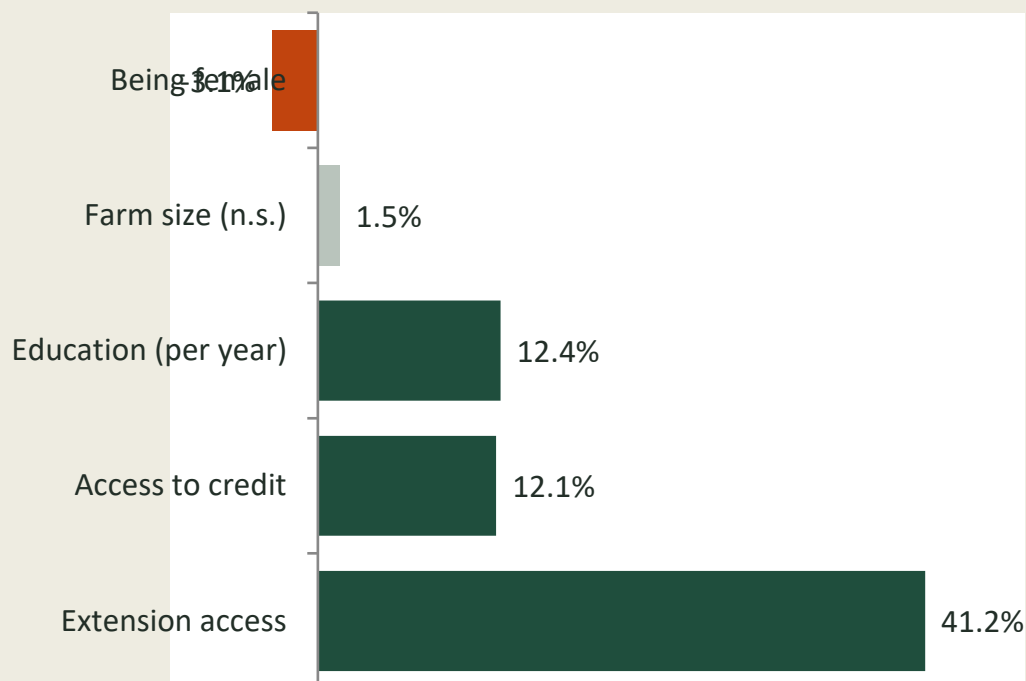
Climate shocks push families to sacrifice their children's education

of households withdraw children from school as a direct coping response to climate-induced income failure



FINDING 3: DRIVERS OF ADOPTION

What predicts adoption of stress-tolerant rice varieties?



Probit regression, $N = 200$, Pseudo $R^2 = 0.24$. Bars show marginal effects on probability of CSA adoption.

Extension services

The single strongest predictor technical training bridges the “Perception-Action Gap.”

Education & credit

Each additional year of schooling and access to formal credit both significantly raise adoption.

Being female

Remains a significant negative predictor despite women’s sharper drought awareness (see Finding 1).

THE CENTRAL PARADOX

The Gender Agency Gap

Women perceive drought risk more acutely (**82% vs. 68% of men**), yet they are **3.1% less likely** to be the ones who act on that knowledge.

Lack formal land titles usable as loan collateral

Rarely hold the “final say” on major farm investments (only 24%)

*Awareness without
agency is not
adaptation.*

Structural constraints, not awareness, limit their agency to act

POLICY RELEVANCE

How the findings align with existing government strategies

POLICY AREA	EMPIRICAL FINDING	PROPOSED POLICY ADJUSTMENT
 Education	18% school dropout rate during shocks	“Climate-Stay-in-School” grants for Tonle Sap communities
 TVET / Labor	Extension access gives a +41.2% adoption boost	Integrate “Green CSA” modules into national TVET programs
 Gender (GCCAP)	High drought awareness, low adoption agency	Link micro-finance directly to female-led CSA projects
 Water Resources	Moderate spousal agreement on drought ($k = 0.42$)	Village water committees with 50% female representation

CONCLUSION

Four actions to close the resilience gap



Protect education through shocks

Automatic “Climate-Stay-in-School” cash grants triggered during floods/droughts, plus Green TVET modules on STRVs and water management.



Empower women as water leads

Mandate 50% women in climate training; leverage their superior drought-detection to trigger earlier household action.



Unlock finance for adoption

Accelerate joint land titling and incentivize MFIs to offer lower-interest loans for CSA-certified inputs.

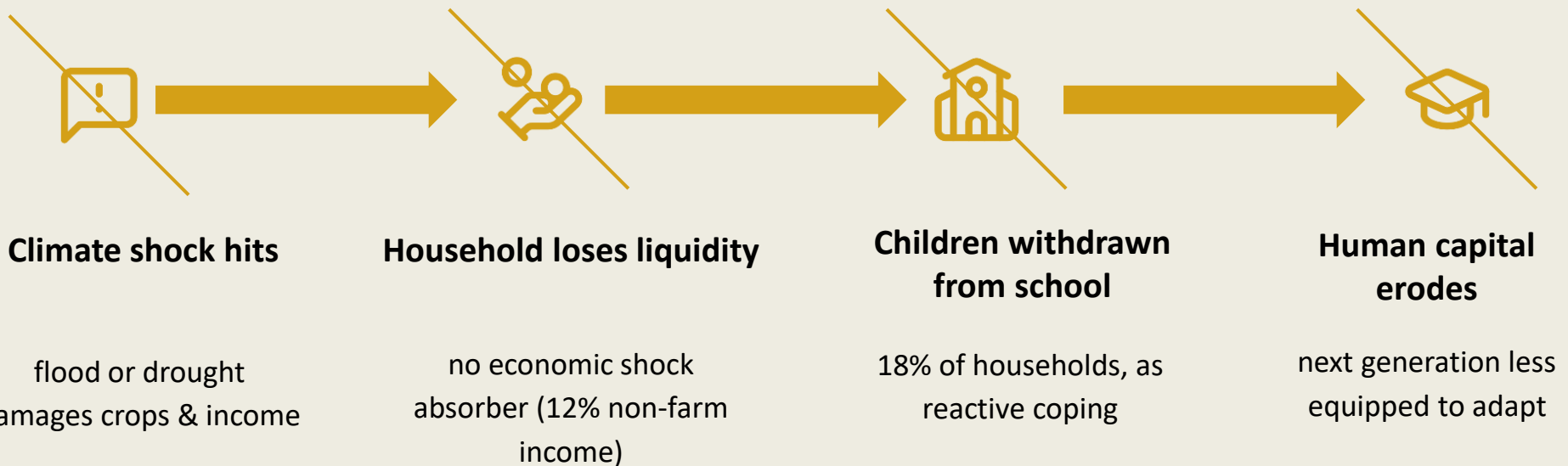


Bridge household perception gaps

Establish village water committees with mandatory husband-and-wife representation to align risk assessment and investment.

STRATEGIC RECOMMENDATIONS

The Education–Climate Poverty Trap



Technical agricultural interventions alone cannot break this cycle, climate resilience in Cambodia is fundamentally a challenge of education and equity.



Thank You

Questions & Discussion

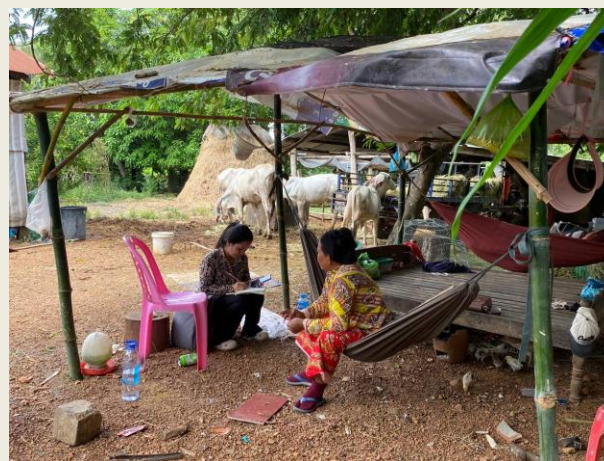
Dr. Yuthnea Ngoy & Dr. Veasna Kheng

Australia Awards Cambodia

Alumni Research Grant, Round Five



Australia Awards



Education and Gender-Based Perceptions and Adaptation to Climate Change:
Insights from Rice Farmers in Battambang Province, Cambodia