

Social protection and climate resilience of rural women and their households in Southern Bangladesh

Webinar Series:
Bridging Gender Research and Causal Inference in Agri-Food Systems

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Understanding causal impacts of interventions

- To inform scaling of interventions, important to identify **what effects** they have, **for whom**, and the mechanisms behind **how and why** effects (do not) occur.
- We highlight research from Southern Bangladesh, which pairs quantitative and qualitative research to understand how social protection interventions influence sustained poverty reduction and climate resilience among resource-poor rural women and their households.
- Focus on how the quantitative component motivated a qualitative component, and how the components' methods and findings complement each other.

Intervention: Transfer Modality Research Initiative (TMRI)

- TMRI was a **pilot social protection program** in rural Bangladesh, implemented by WFP from **2012-2014**.
- Partnership with IFPRI to assess TMRI's impacts, to inform national social protection strategy on what modalities are effective for the rural “ultra-poor” in Bangladesh.
- Social protection is a key priority for the Government of Bangladesh: \$11.8 billion allocated in FY2024 (16.6% of national budget and 2.5% of GDP)
 - Aim to prevent poverty and food insecurity; support livelihoods and investments; help manage risk.
 - Many programs include small regular cash or food transfers directly to resource-poor households.
 - Transfers often bundled with complementary activities – e.g., trainings on nutrition, livelihoods, etc.
 - Program coverage mostly rural, reaching smallholder farmers or landless poor.
 - Many name women as recipients for transfers and complementary activities.

Intervention: Transfer Modality Research Initiative (TMRI)

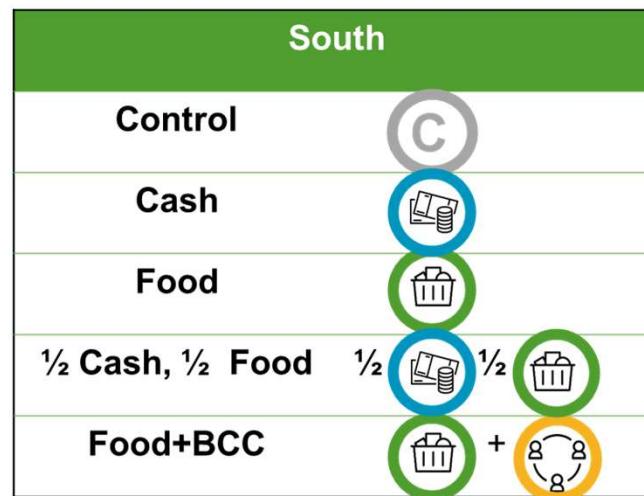
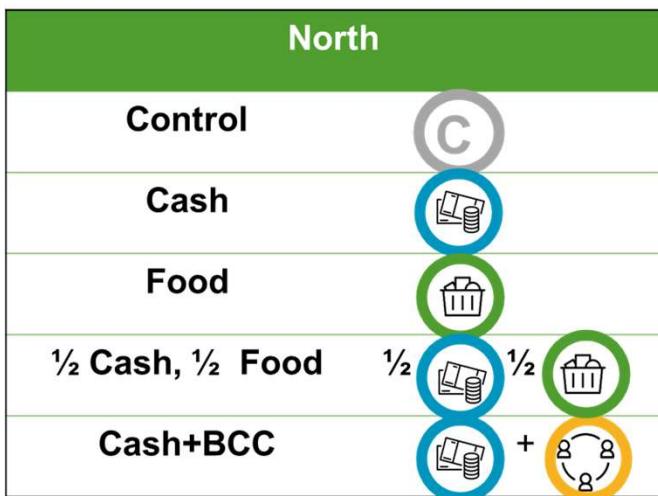
- TMRI provided **monthly cash or food** transfers – with or without **group-based nutrition behavior change communication (BCC)**.
- Provided to mothers of children 0-2 years in rural ultra-poor households, in North & South of Bangladesh.
- Key focus was to improve household food security and child nutrition.
- Nutrition BCC design responsive to gender context:
 - Weekly meetings of participant women in village, with trained community nutrition worker.
 - Influential household members (e.g., husbands, mothers-in-law) invited once a month.
 - Additional home visits, and meetings with community leaders.
 - Interactive curriculum focused on accessing healthy diets for children, including through home production.
 - Women reported BCC participation as empowering, building their knowledge and social capital.



Photo credit: Aminul Khandaker, IFPRI-Dhaka

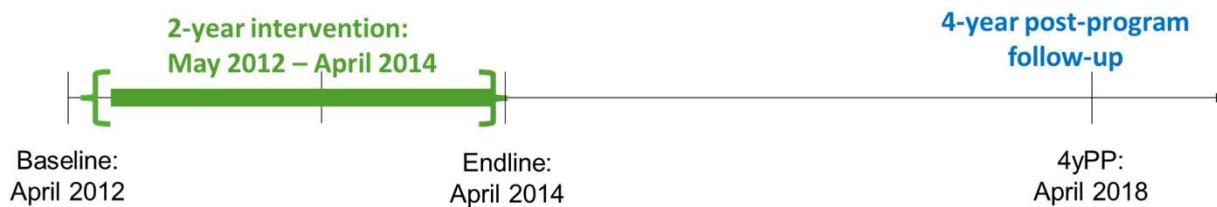
Randomized control trial (RCT) design of TMRI

- With the intention of rigorous impact assessment, TMRI was **designed as a cluster-RCT**.
- Aimed to understand: Food or Cash? Effect of adding BCC? Dependent on regional context?
- North poorer, but more favorable agroecology for crop agriculture and livestock.
- Southern coast highly vulnerable to climate change – increasing intensity and frequency of cyclones, storms, flooding; increasing soil salinity due to sea level rise and storm surges.
- In each region, 250 villages were randomly assigned across five arms; 10 participants per village.



Quantitative impact assessment (2012-2018*): Research questions, data collection, methods

- What were the **impacts of TMRI's different interventions** on **households' poverty, men's and women's livelihoods, women's empowerment and psychosocial well-being**, and **children's nutrition** – **during the program**, and **sustained 4 years after** the program ended? *
- Collected longitudinal data for treatment and control arms – on **households** (e.g., consumption) and **individuals** (e.g., livelihoods, assets, diets, nutritional status, empowerment) from 2012-2018.*



- Causal impact estimation **draws on the RCT design**:
 - Control group serves as the counterfactual for each intervention group, at each time point and region.
 - Sample sizes sufficient to be powered for statistical significance on key outcomes. (~5000 households)

* 2022 data collection completed and analysis underway, but not completed before development of qualitative component.

Quantitative impact assessment (2012-2018): Estimation of causal impacts

- Using Analysis of Covariance models, estimate what is each TMRI treatment's impact on key outcomes, *relative* to the control group's outcome.
- Standard errors used to assess whether the estimated impact statistically significantly differs from 0.

Example simplified table of estimated TMRI treatment impacts:

Impact on poverty headcount, relative to the control group – by region, 2014 & 2018

Impact of...	North	
	2014	2018
Cash	-0.14***	-0.09**
Food	-0.12***	-0.00
Cash + BCC	-0.34***	-0.12***
Control mean	0.73	0.60

Impact of...	South	
	2014	2018
Cash	-0.09**	0.00
Food	-0.11***	0.03
Food + BCC	-0.23***	-0.06
Control mean	0.49	0.34

* = significant at 10% level, ** = significant at 5% level, *** = significant at 1% level.

Quantitative impact assessment (2012-2018): High-level findings*

- **During the program, improvements from all arms in both North & South (2014):**
 - All arms ↓ household poverty (stronger in North and from +BCC arms)
 - All arms ↑ asset ownership (↑ livestock from all arms in North and from +BCC arm in South)
 - Most arms ↑ labor hours (↑ men's and women's farming hours from all arms in North and from +BCC arm in South)
 - +BCC arms ↑ crop production (↑ rice production and homestead gardening)
 - +BCC arms ↑ women's empowerment and psychosocial well-being (↑ control over money, agency, social capital; ↓ stress and IPV)
 - Only Cash+BCC in North ↑ child nutritional status
- **4 years after the program, trajectories differ (2018):**
 - **North:**
 - Cash and Cash+BCC lead to sustained ↓ household poverty
 - Driven by sustained ↑ in savings, livestock, homestead gardening, women's farming, women's empowerment
 - **South:**
 - Few sustained impacts on household poverty or other outcomes

- Sustained improvements in the North appear driven by women's livelihoods.
- But improvements in the South could not be sustained - *Why?*

* References: Ahmed et al., 2023; Ahmed et al., 2024; Ahmed et al., 2025; Roy et al., 2019; Roy et al., 2024

Motivation for integrating qualitative component (2022)

- Qualitative study then designed to help understand why the difference between South and North
- In a context like southern Bangladesh, where rapid shocks like cyclones intersect with slow-onset salinization, how SP can contribute to long-term resilience remains less well understood through a gender and climate lens

How can social protection programs support resilience capacities of rural women and their households?

- Given the climate context in the South, what were the potential and limitations of TMRI – and another ongoing government social protection program in southern Bangladesh – in building climate resilience?

Qualitative impact assessment: Data collection and methods

Qualitative data collection in 2022

- Study sites: **Khulna, Bagerhat, and Patuakhali** districts
- Purposive sample: a subset of the recently-completed 2022 TMRI quantitative survey sample in the South – to explore how former TMRI participants perceived its influence during and after programming
 - Participants recruited from 2 arms: Cash transfer, and Food transfer + nutrition behavior change communication (BCC)
- Another part of the sample: current participants of a large government social protection program for rural women (Vulnerable Group Development Program) in the South

Methods

- 6 focus group discussions (FGDs)
- 31 semi-structured interviews (SSIs) with women program participants and their husbands
- Design of interview guide—impact of receiving support from the SP programs on participants' lives



Interviewing husband of a TMRI participant (Food + BCC)

Qualitative impact assessment: High-level findings

Social protection, resilience capacities: Connecting the dots

Source: DuttaGupta, T. and Roy, S. 2023. Social protection and climate resilience of rural women and households: Insights from a qualitative study in southern Bangladesh. Brief. <https://hdl.handle.net/10568/135996>

Climate impacts	Role of social protection (SP)	Use of SP benefits	Timeframe
Rapid onset events: cyclones, storm surges, flooding + Slow onset events: salinization Rainfall variability	Protective (cash and food transfers, shelter)	Absorptive capacity Buy and eat food Pay for basic needs Build makeshift structure Training-help cope after cyclone	Shorter term
Loss and damage of property Effect on agriculture: crops, livestock, and fish Employment and income insecurity Food insecurity Water insecurity	Preventive (cash and food transfers, training, shelter)	Anticipatory capacity Store food and basic items Go to shelter (cyclone) Save money from not buying food Training-help prepare for future shocks	
	Promotional (social transfers, assets, training, livelihood diversification, shelter, water tank, tube well)	Adaptive capacity Buy and access assets, e.g., land, livestock Cultivate land Rear livestock Invest in children's education Plan for future Savings Learn skills	Longer term

Qualitative impact assessment: High-level findings

SP support can strengthen shorter-term coping capacities in the face of climate shocks, with potential to support longer term adaptive capacities.

Receiving food transfer helped families survive immediate aftermath of cyclones

"Then getting that food benefited us. **That we didn't have to starve.** If nothing else, we could eat pulses and rice somehow. At that time, it was a great benefit." (TMRI participant, Patuakhali)

Money saved from not having to buy food could be used for family expenses in short term and even assets like land and livestock in the longer term.

"As we were getting the food as relief, so I get to save some money in those two years. **From that savings I've bought a calf**" (Husband of TMRI participant, Bagerhat)

But once program support ended, longer term pathways supporting adaptive capacity could be truncated.

"No, we couldn't harvest that land anymore. I mean we did not get enough cash again so we couldn't do it further" (TMRI participant, Khulna)

Compared to those who did not receive the nutrition BCC, TMRI participants who received nutrition BCC shared the knowledge with others, and that knowledge supported their coping and anticipatory capacities.

"I took my **mother-in-law, sister-in-law and daughter** for training" (Participant, Bagerhat)
"there was a trainer sister, she used to warn us when there was a storm... **She used to teach us** these things" (Participant, Bagerhat)
"During **Corona**, we remembered to always wash our hands with this soap" (Participant, Patuakhali)

Bringing components together

Taken together, findings from the two components indicate Social protection in Bangladesh for resource-poor rural households *:

- Reduce poverty and improve livelihoods during programming – across regions, either food or cash.
- With added BCC, impacts are stronger and broader.
- Providing cash transfers (versus food) and adding BCC *can* lead to sustained diverse benefits – including for rural women – but sustainability of benefits is *strongly influenced by context*.

In Southern Bangladesh:

- Cash transfers or food transfers can protect rural women and their households from short-term adverse effects of climate hazards.
- SP support also helped reduce household poverty and increase asset ownership and savings, but few impacts could be sustained.
- Complementary trainings (+ nutrition BCC) can strengthen coping and anticipatory capacities to prepare for future shocks.
- Nutrition education can be a pathway towards more equitable nutrition+ outcomes.

But **additional strategies are needed** to support women in sustaining livelihoods post-program and building longer-term climate resilience.

- Future research is needed to better understand synergies in complementary program design, e.g., nutrition education paired with sensitization dialogues and livelihood skill building activities.

* Findings have influenced policy in Bangladesh and globally.

Complementarity of components

Lens for understanding causality and integrating gender

- **Quantitative:** What were the measurable and causally-attributable impacts of the program, during and after its implementation?
 - Drawing on RCT design to compare against a “counterfactual.”
 - Intentionally integrating sex-disaggregated questions in surveys to estimate impacts on gendered outcomes.
- **Qualitative:** How did participants experience the support they received, and how that did or did not influence their lives during and after the programs?
 - Drawing on semi-structured interviews to understand participants’ perceptions of influence, and the process/mechanism through which the programs influenced their lives.
 - Integrating a relational lens in the study design, including sampling strategy and themes in the interview guide to understand the impact of gender responsive social protection on climate resilience of rural women and their households.

Findings continue to inform next round of research

What were TMRI's impacts during and after the program?

During the program, TMRI led to significant improvements in both the North and South. But impacts were sustained only in the North, not in the South.

In Southern Bangladesh, how can social protection programs support resilience capacities of rural women and their households?

TMRI protected both men's and women's diet quality from extreme flooding (mitigated effects on legumes, increased fruits/vegetables).

During programming, did TMRI protect men's and women's diets from extreme flooding in Southern Bangladesh?

(Analysis underway... Stay tuned!)

Longer-term, what are TMRI's impacts on men, women, and youth?

How can social protection be improved to address longer-term resilience?

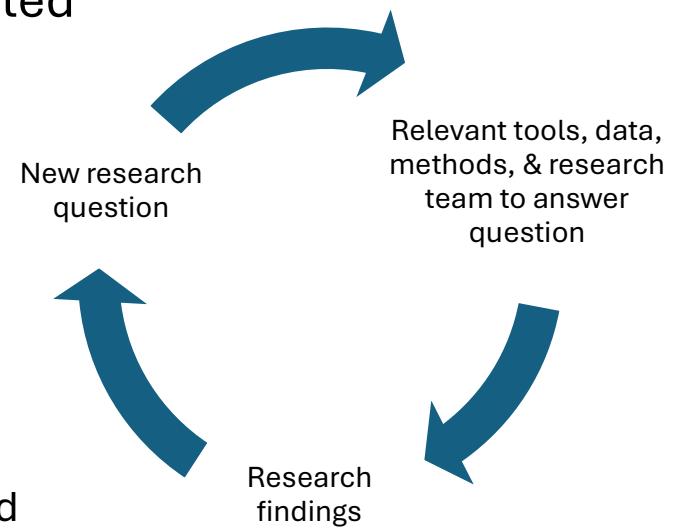
Social protection can effectively protect men and women in Southern Bangladesh from some immediate effects of climate hazards, but with nuance.

Additional barriers must be addressed to promote longer-term resilient livelihoods, particularly for women.

Key considerations for mixed-methods research

Sequencing of components, to what extent they are integrated

- May be shaped by logistics, budgets, feasibility – as in our case
- Ethical considerations



Intentionality in collaborative process:

- Decisions in designing the components to ensure they come together
- Iteration in discussing how findings complement each other and speak to next research questions

NOT a linear process!

Thank you!

We are deeply grateful to study participants for taking time to share their experiences over many years, our research teams, and to our many donors – including the CGIAR Research Program on Policies, Institutions, and Markets; the CGIAR Initiatives on Gender Equality and on Fragility, Conflict, and Migration; and the CGIAR GENDER Accelerator.