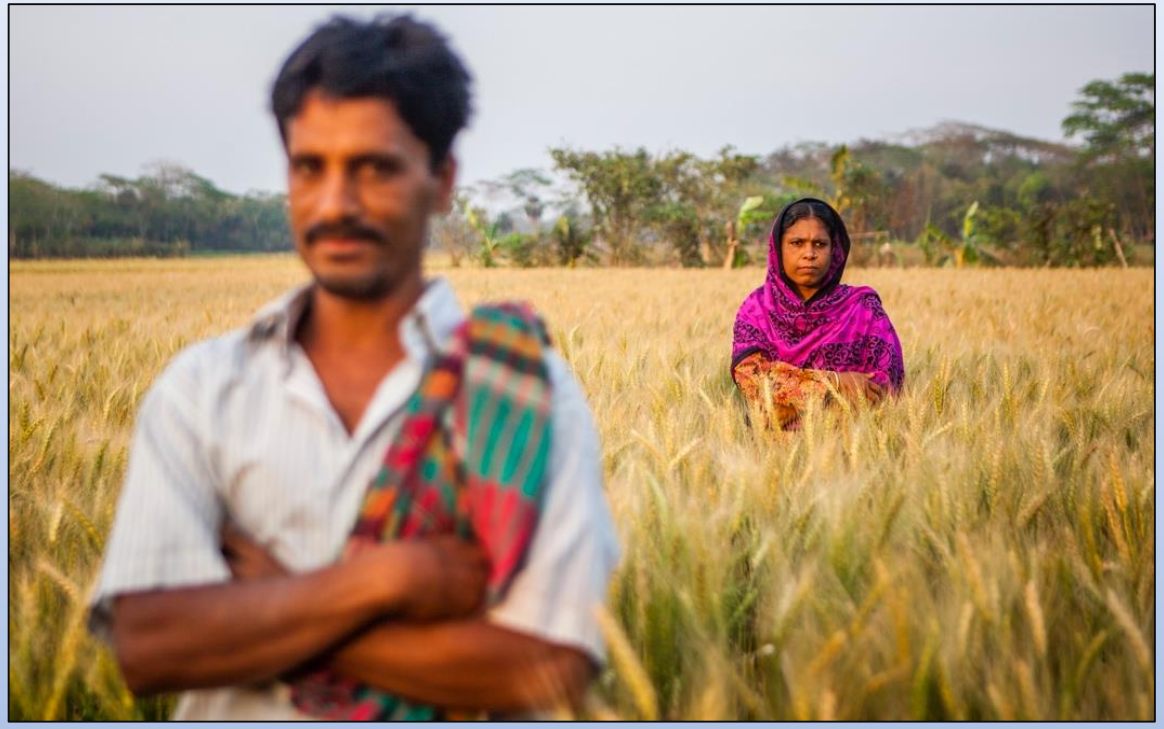
GENDER AND RURAL MECHANIZATION IN BANGLADESH



A mixed-methods exploration of multi-crop reaper-harvester service provision

Dhaka, Bangladesh | May 6, 2019

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INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
IFPRI

CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security
CCAFS

CIMMYT
International Maize and Wheat Improvement Center

Introduction and background:

Collaboration – gender & rural mechanization

Research phase I:

Literature review & secondary data exploration

Research phase II:

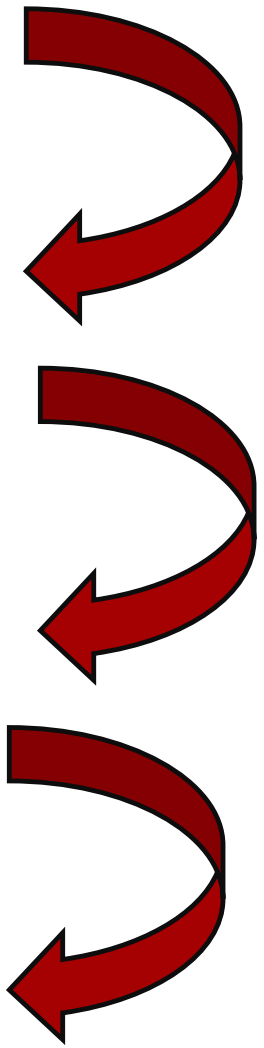
Focus groups & key informant interviews

Research phase III:

Telephone survey

Conclusions and Implications:

Lessons for closing the gender gap



Research collaboration with the Cereal Systems Initiative for South Asia

- R4D activities align with Bangladesh's CIP and Five-year plans
- Applied multi-disciplinary research for development
- Process and technology innovation
- Advanced data analytics, strategic public and private partnerships, strengthened markets
- Making sustainable intensification actionable

Managing risk and increasing resilience

Farming systems optimization

Precision crop management

Rural service economy and entrepreneurship

Rural advisory and extension support

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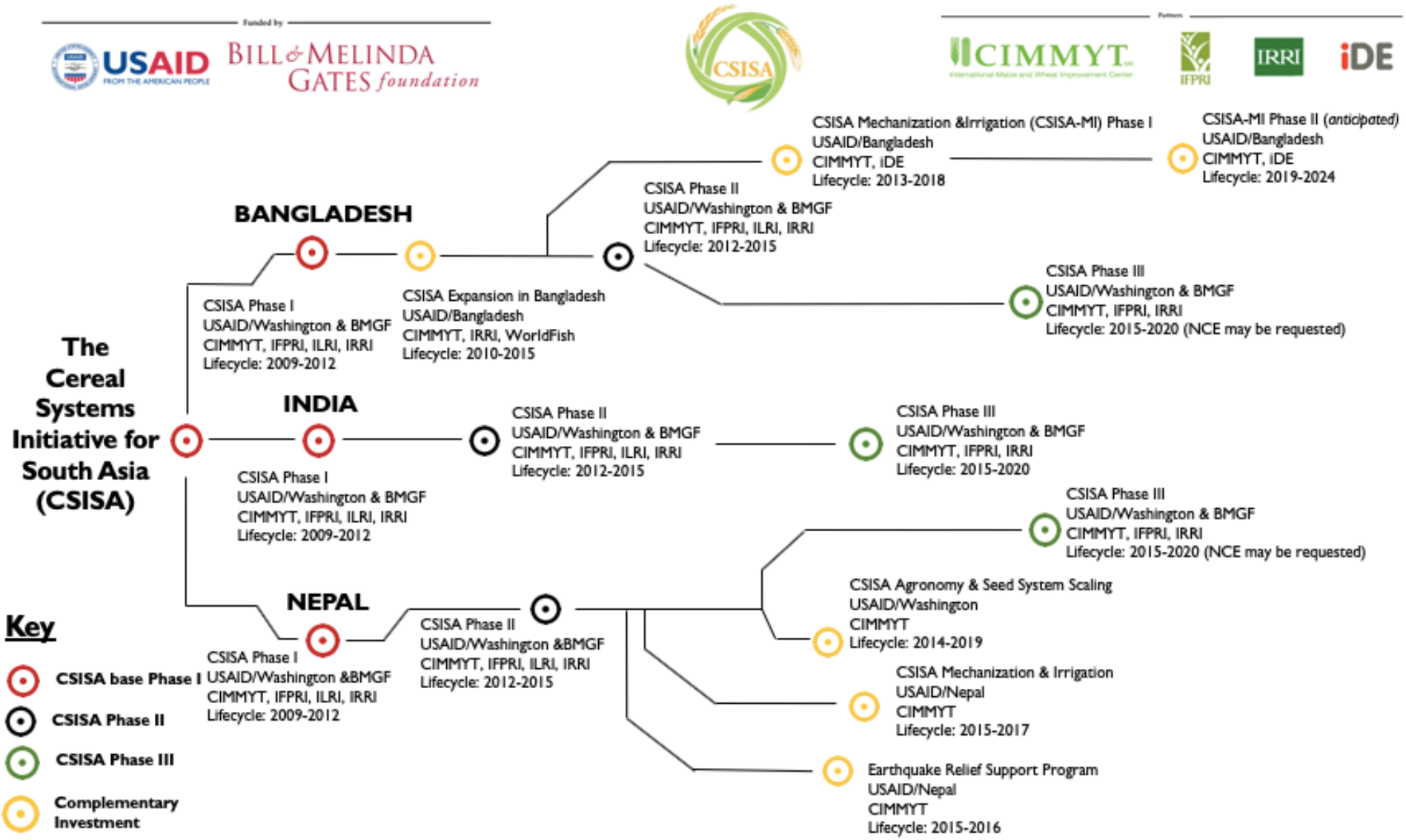
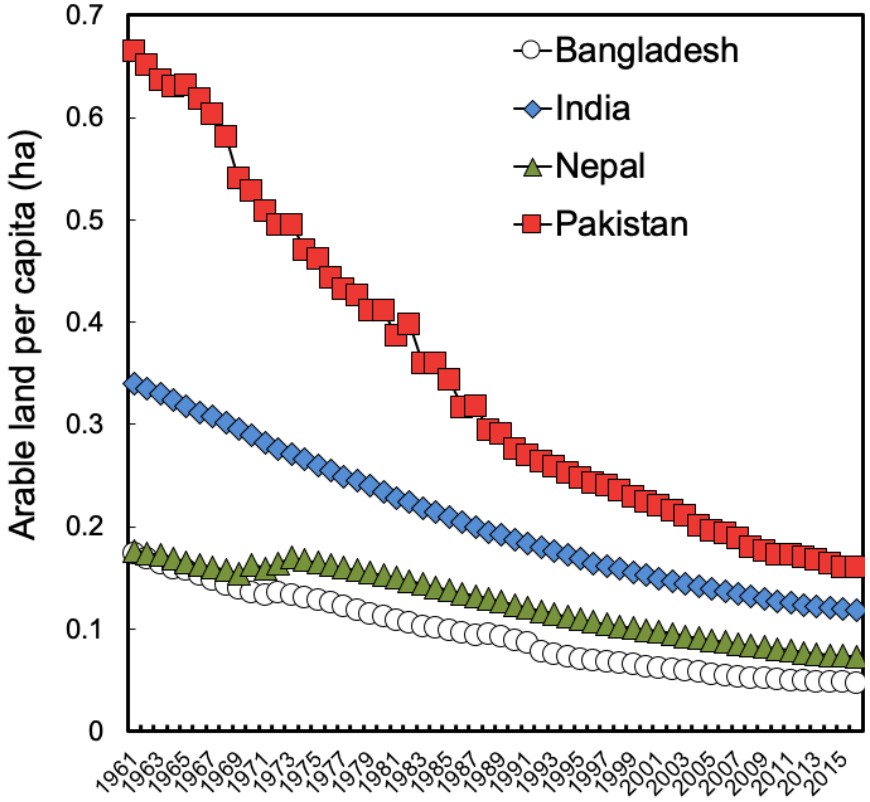
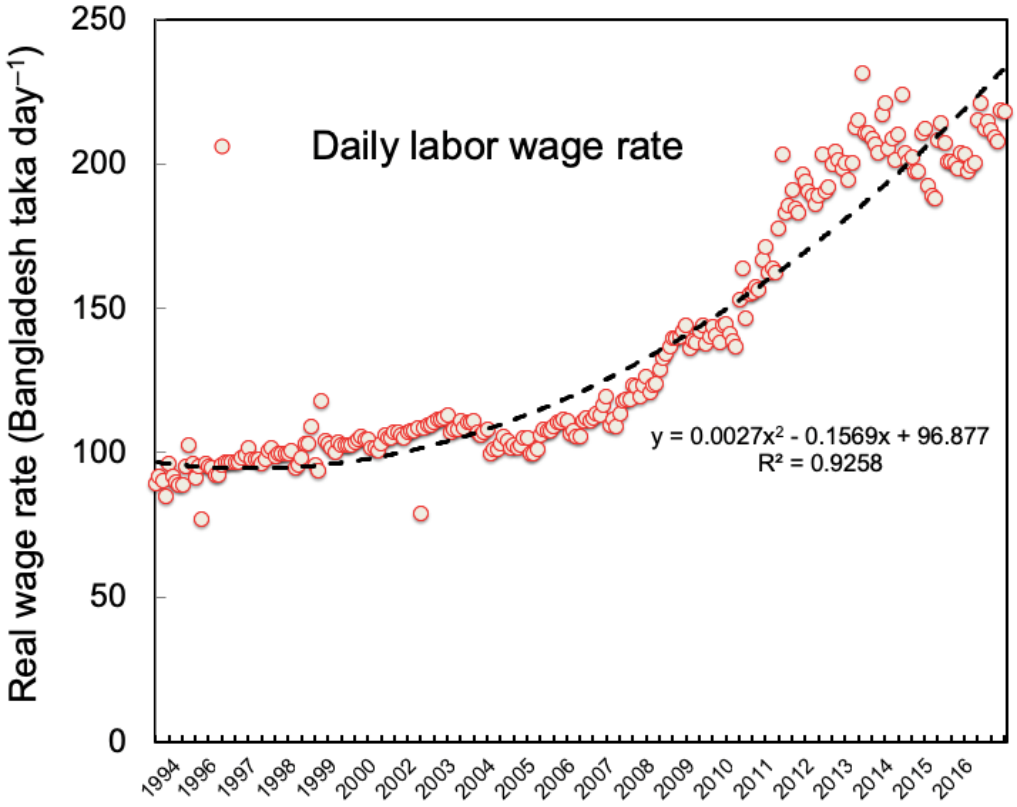
The ten year evolution of the Cereal Systems Initiative for South Asia



Research context

Bangladesh's declining agricultural land resources….



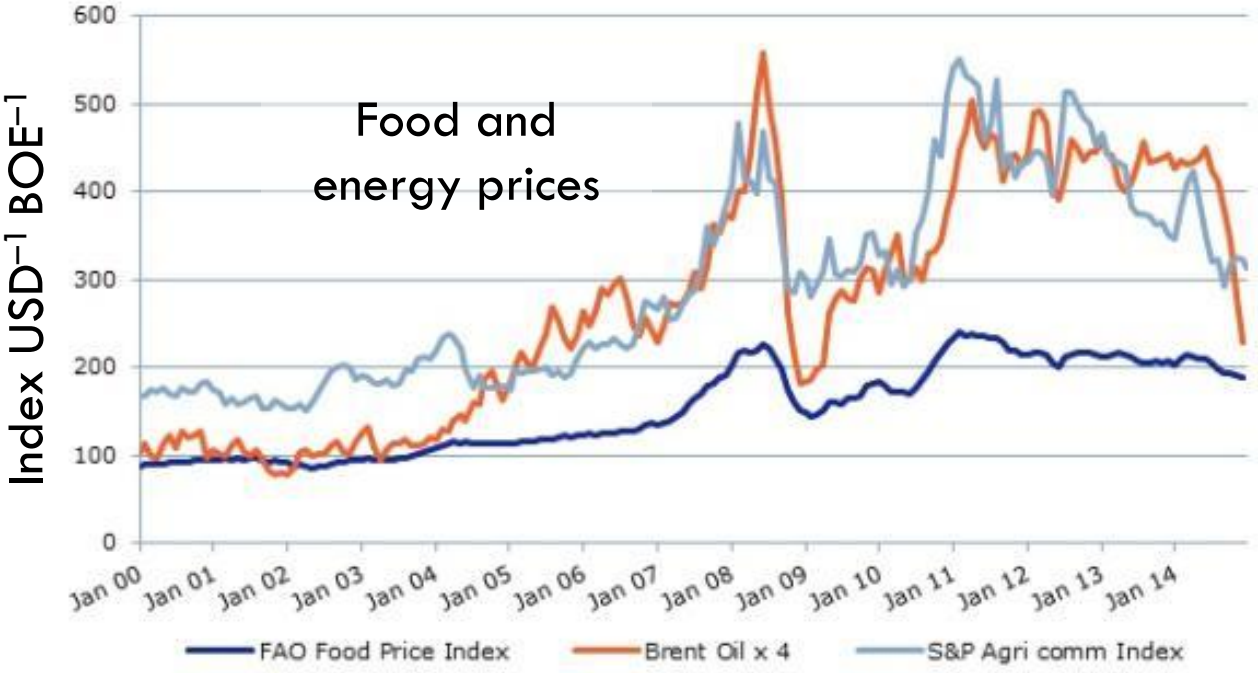


…and increasing rural labor costs

Challenges in rural development

Energy – Food – Water

Low intensity, high drudgery → Appropriate mechanization ← High intensity, low efficiency



Access and equity

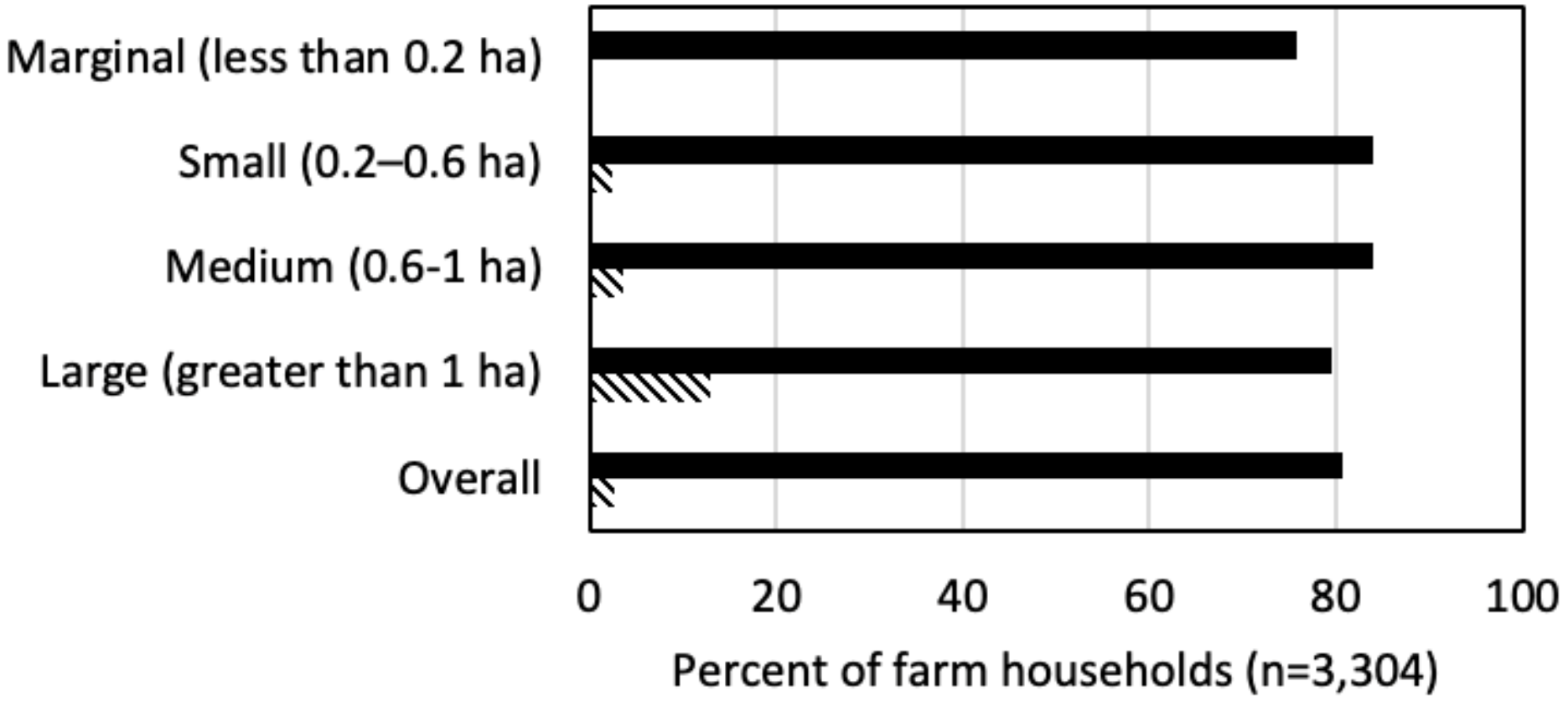
(GCAN synergies)

Land preparation and sowing —— Irrigation —— Harvest

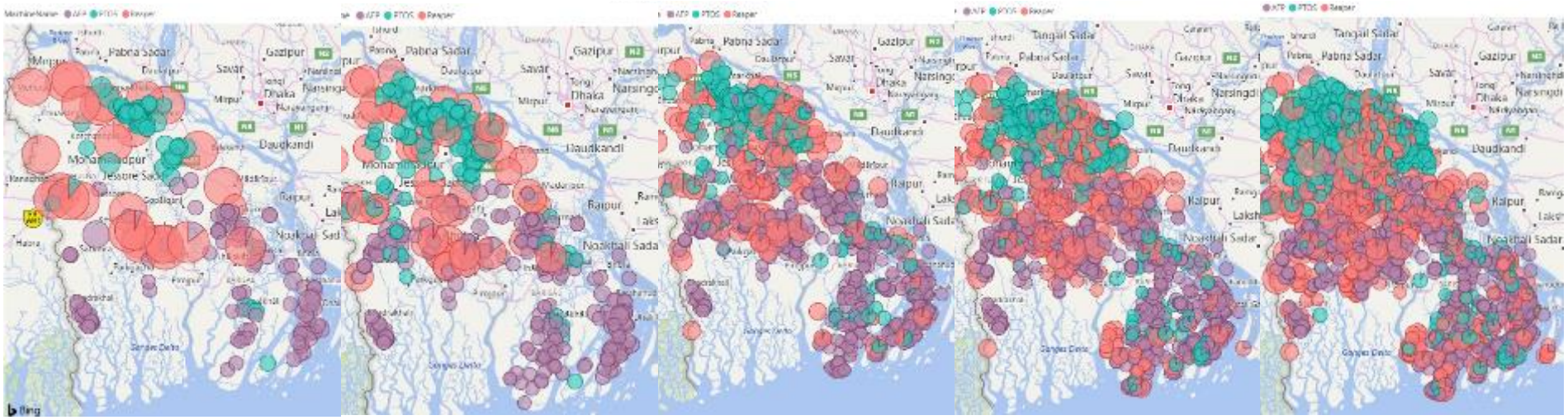
Scale-appropriate farm machinery and rural service provision

- Bangladesh is already highly mechanized
- Reduces labor demand, drudgery, and challenges and costs of hiring laborers
- Numerous new machinery opportunities
- Many agronomic advantages
- Offers opportunities for entrepreneurship

Farm machinery service provision benefits farmers across resource endowment groups



Growth in machinery service provision in the CSISA-Mechanization and Irrigation project



2014 2015 2016 2017 2018

** Circle size depends on amount of BDT investment*

Courtesy S. Rahman, J. McHugh

Multi-crop reaper-harvesters

- Relatively new technology in Bangladesh
- Two types:
  - Self-propelled ‘walk behind’ model and the 2WT-attachable and rideable models
- High initial capital investment ($500–$2000)
  - Farmers access by renting from a service provider that includes skilled machine operators to harvest fields
- Rapidly cuts rice and wheat, with some use in sesame and jute
  - Significant reductions in time and costs of harvesting

- Research question: What can **women’s and men’s involvement in reaper-harvester machine services** in Bangladesh tell us about how to **close the gender gap in women’s access to agricultural technology**?

Research phase I:

Literature review & secondary data exploration on the gender gap and farm machinery service provision

Conflicting narratives about how to address gender gap in access to agricultural technology

1. Women lag behind men in adopting new technology:
   - Greater constraints to accessing capital, credit, and information
2. Technology ownership:
   - Not necessarily an accurate representation of who benefits or bears technology costs
3. Women have needs and preferences distinct from men
   - Strongly conditioned by hegemony and culture

How to reconcile this challenge?

Pre-conditions for women's adoption: Women must **be aware of and have <u>access</u> to** (narrative 1) **technologies that they prefer** (narrative 2) and **be able to perceive and effectively negotiate cultural settings to understand associated benefits and costs** (narrative 3)

Distinct gender gaps exist in agriculture in Bangladesh

- Women aged 15-64 years
- Women's involvement in field activities tends to be limited
- Distinct gender roles
- Access to, and control over resources is limited for women

Common mistake in gender analysis

- Despite lack of participation, it mistake to assume that women do not desire to access / benefit from / be involved in machinery service provision

Research phase II:

Focus groups and key informant interviews

Qualitative data collection

- Four study sites selected from Jhenaidah and Faridpur districts
  - CSISA staff helped to identify areas with high density of service providers and high uptake rates of reaper technologies
- Two rounds of data collection:
  - October–December 2017 and November 2018
- Semi-structured interviews, focus group discussions, and key informant interviews, with:
  - Husband and wife machine service providers
  - Men and women who hire these machines for their farms
  - Women farmers in non-mechanized farming households
  - CSISA staff and community leaders

Gender-based challenges to access

- Learning about the machine
- Investing in the machine
- Advertising the machine to clients
- Operating the machine

“A woman running a business is not bad, but running a machine is.”

– Female reaper service provider, Faridpur

- Supervising male operators

“…the operator does not give the earned money back properly. This mainly happens because I am a woman.”

– Female reaper service provider, Jhenaidah

- Lack of family and community support

“*If I get out of my house or go to the market, people tend to point me out and say, ‘look at that woman, she is going outside*.’”

— *Woman in Jhenaidah*

Perceived benefits of hiring reaper services

- Flexible payment options
- Time savings
- Cost savings
- Changes in intrahousehold decision making
- Changes in household work loads

“If I say something to my husband he listens to me now. Previously he would not, since in poor families there is no time to listen... The crops that were produced were used for our food, therefore leaving no crops to sell, so why would he listen to me? The money that gets saved [now] can now be used for other expenses such as my children’s education or the household and that is my decision. I do not have to tell my husband.”

– Woman in household that hired reaper, Faridpur

Gender-based challenges in hiring multi-crop reaper services

- Unequal opportunities to learn about machinery services
- Initial lack of time
- Gender restrictions in contracting

Women must *"…take help from another man, who would talk on her behalf, and would later bring in the money from the women...in other words, there is no direct communication."*
– Male service provider, Faridpur

Exception: Women in poorer households without male family members

- Women not generally prioritized by service providers (opportunity for intervention)

Research phase III:

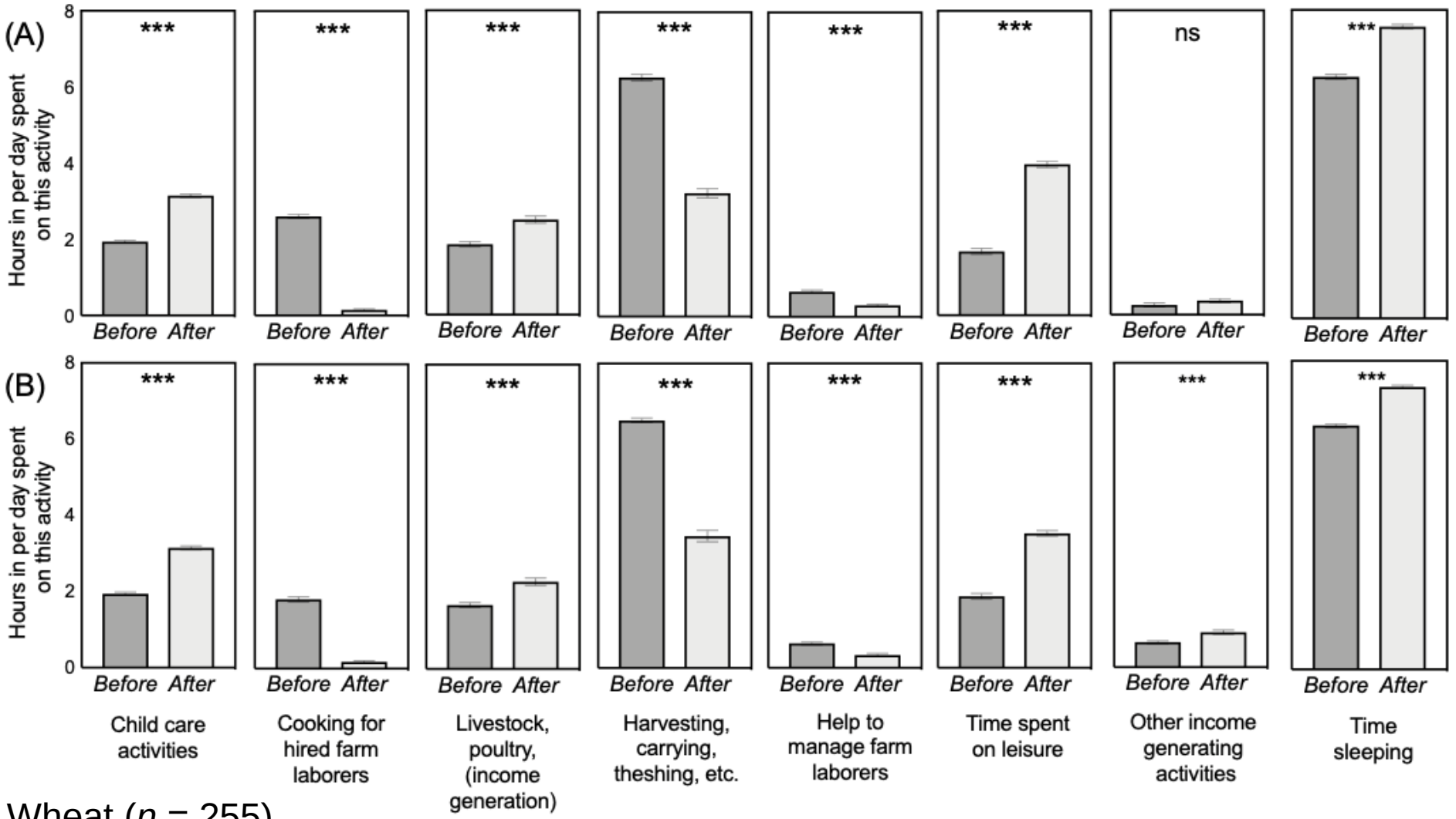
Telephone survey follow-up

- Database maintained by CSISA-MI
- Eight enumerators, five women
- March of 2019

Photos: News.Asia and CDG

Implications of reaper-harvester adoption on women's activities (harvest months)

Rice (*n* = 254)



Wheat (*n* = 255)

Suggested approaches to close the gender gap in machinery service provision

- Women already involved in many 'behind the scenes' aspects of service provision
- Joint ownership and training – preconditions for supportive machinery purchase and smart subsidies
- Leveraging women's networks to expand client base
- Leveraging credit and access to finance
- Special case consideration for group ownership

"I do not face problems getting payment as a woman… I am not alone. I have a women's committee."
– Female member of a collectively-owned service provider, Jhenaidah

- Sensitize men to women's contributions

"Involving women in business can be good. If women are given the knowledge, then they would also be able to do what a man does. They would come, [saying] 'This is my work, so I have to do it. No matter what others say. If the husband supports and helps their wives, what others say should not matter."
– Male service provider, Faridpur

Suggested approaches to close the gender gap in reaper services hiring

- Prioritize joint learning
- Also emphasize secondary non-agronomic, non-cash income benefits – key benefits for women may be secondary
- Advertising to women's groups and collective hiring
- Increasing access to finance and smart lowering service provision costs

Conclusions and implications

- Need for “ownership” over technology can be questioned (Narrative 1)
- Women benefit from from important, though less ‘visible’ mechanisms (Narrative 2)
- Joint ownership / access and husband and wife trainings (Narrative 3)
- Tap into women’s networks to boost technology adoption (Narrative 2/3)
- Agricultural machinery is both a business and service (Narrative 3)

Pre-conditions for women’s adoption: Women must be aware of and have access to (narrative 1) technologies that they prefer (narrative 2) and be able to perceive and effectively negotiate cultural settings to understand associated benefits and costs (narrative 3)

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GENDER, CLIMATE CHANGE, AND NUTRITION INTEGRATION INITIATIVE (GCAN) — PROJECT NOTE 8
CEREAL SYSTEMS INITIATIVE FOR SOUTH ASIA (CSISA) & CSISA – MECHANIZATION AND IRRIGATION — RESEARCH NOTE 9

OVERCOMING GENDER GAPS IN RURAL MECHANIZATION

Lessons from reaper-harvester service provision in Bangladesh

Sophie Theis, Nasrin Sultana, Timothy J. Krupnik

The introduction of new agricultural technologies is never gender-neutral, but the differential changes are not always immediately evident. While the most visible gender gaps between men and women appear in the hands-on use of technologies, in the case of agricultural machinery, gender differences also arise in farmers' ability to rent and hire machinery. To explore gender dynamics in emerging markets for agricultural machinery service-provision in Bangladesh, the Gender, Climate Change, and Nutrition Integration Initiative (GCAN), the Cereal Systems Initiative for South Asia (CSISA), and CSISA–Mechanization and Irrigation (CSISA-MI) partnered to conduct qualitative research in Faridpur and Jhenaidah districts in October–December 2017. We interviewed husband and wife machine service providers (machine owners who charge affordable fees for machinery services to other farmers) (19 women, 18 men), men and women who hire these machines for their farms (26 women, 17 men), women farmers in non-mechanized farming households (12), and CSISA staff and community leaders (2 women, 7 men).

Both women and men can earn an income: Husband and wife Liajur Loshkar and Sathy Begum count money gained from their agricultural machinery service provision business in Bangladesh's Gopalganj District. Photo: S. Majumder.

AT A GLANCE

Custom hiring of labor- and cost-saving agricultural machinery services is increasingly common in South Asia. We studied the gendered differences in women's and men's involvement in emerging markets for reaper-harvester machinery services in the Feed the Future Zone in Bangladesh. We find that women benefit from managing and sometimes owning machinery services, as well as from the direct and indirect consequences of hiring such services to harvest their crops. However, a number of technical, economic, and cultural barriers constrain women's full participation in these benefits. The brief provides suggestions for initiatives promoting rural machinery services to more fully engage women, as business owners and users of machinery, to expand the benefits of these markets, with relevance for South Asia and other farming geographies dominated by smallholders.

We focused on machinery services for multi-crop reaper-harvesters, which enable farmers to rapidly cut rice, wheat, sesame, jute, and other crops during harvest. Two types of reapers are common in Bangladesh: the self-propelled 'walk behind' model and the two-wheel tractor-attachable and rideable models. Both technologies reduce drudgery and alleviate family or hired labor bottlenecks at harvest time. Service providers running reaper businesses often hire skilled machine operators to harvest farmers' fields. Reapers can reduce the time and costs of harvesting by 80% and 60%, respectively, while enabling the rapid clearing of land so that farmers can sow the next crop by the recommended planting date. Women in Bangladesh face cultural constraints to participating in agricultural work in the field as well as working outside the home. This note provides insights into why female participation remains low in both reaper service business ownership and in

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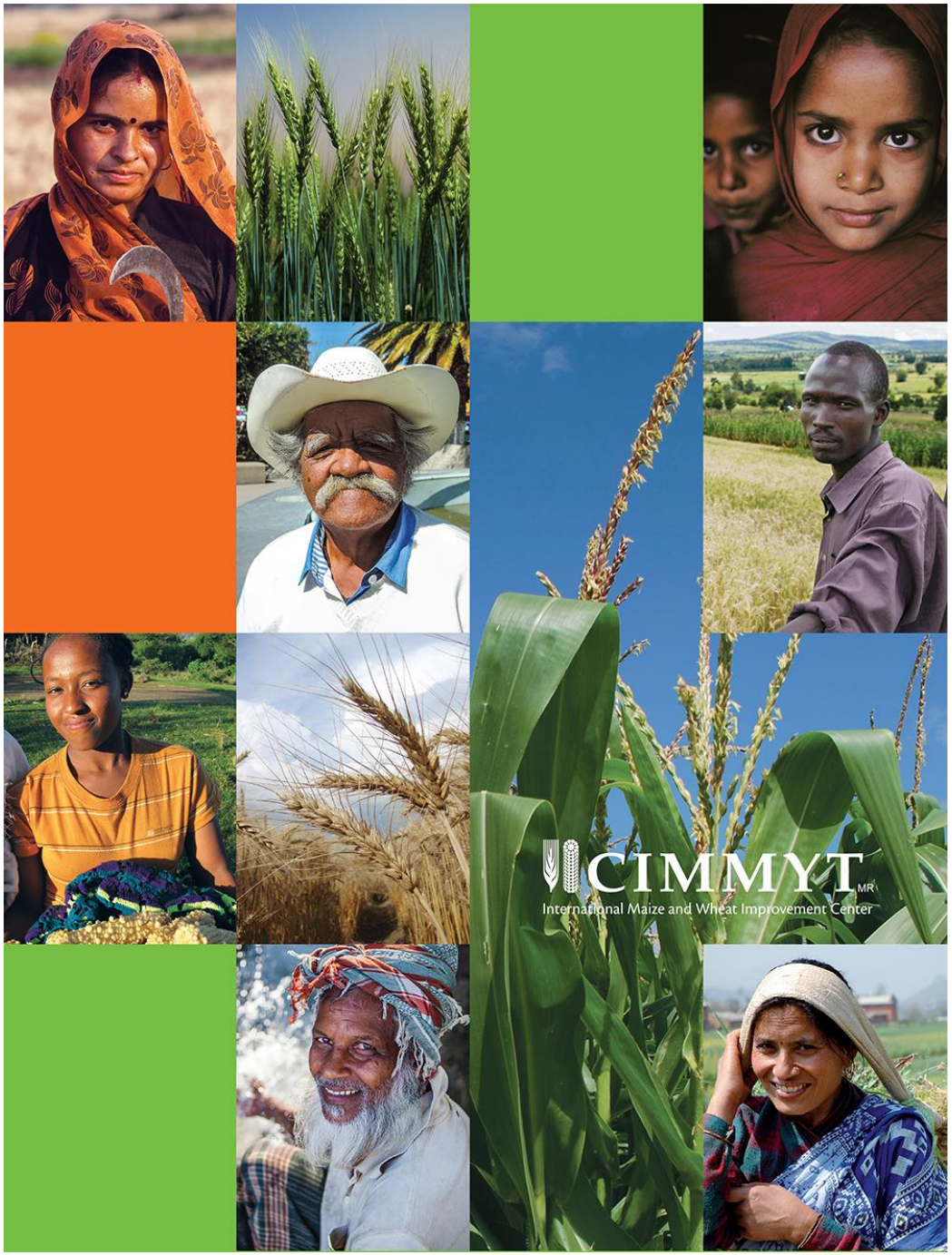
Report from this study is available

https://csisa.org

Search under 'Research notes'



Thank you!

Any questions?

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