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The U.S. Government's Global Hunger & Food Security Initiative

Photo: Fekadu Gelaw

Getting Ahead of the Game: Experiential Learning on Groundwater Governance and Collective Action

Hagar ElDidi and Wei Zhang - IFPRI

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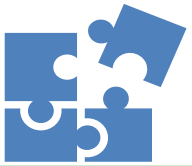
WHY EXPERIENCIAL LEARNING/ GAMES

Useful for identifying behavioral patterns and shaping mental models; learning by doing

HYPOTHESIZED IMPACT PATHWAY

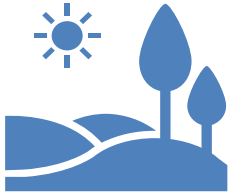
Intervention package:

- Game-facilitated experiential learning
- Platform for community-wide discussion about shared vision and ways to improve governance



Outcomes:

- Awareness about shared nature of groundwater system
- Behavioral change at the individual level
- Collective governance: Rules established



Impact:

- Sustainable and equitable Natural Resources Management

SITES

- Butajira, SNNPR - SE of Addis Ababa, Ethiopia
- Upper East Region, North of Ghana
- Keta basin, South of Ghana (coastal)

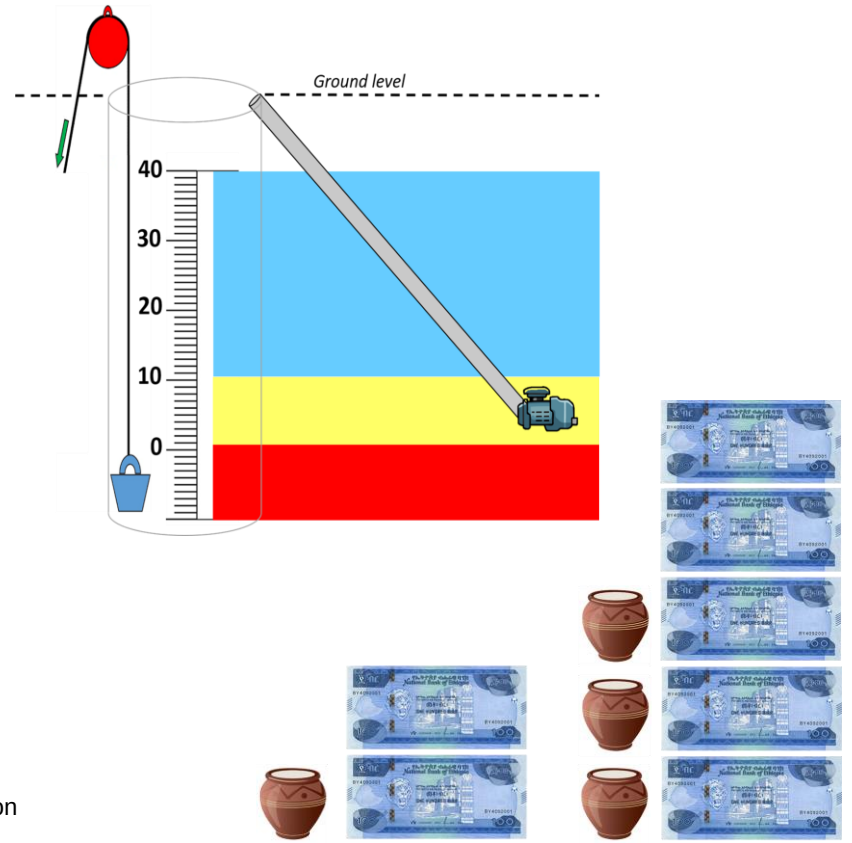
RESEARCH FOCUS

- The immediate learning effect of the game on participants; comparing before and after perceptions
- The medium-term effect of the intervention on the communities

GROUNDWATER GAME

ADAPTED FROM A GAME DEVELOPED/PILOTED IN INDIA (MEINZEN-DICK ET AL. 2018)

- Game
  - Players choose between crops with different water use & returns
  - Different game treatments: No communication, communication, and rules
  - Keta games adapted to address the GW salinity context
- Community debriefing
  - How this relates to own farming experiences/ challenges
  - Lessons/ insights gained from the experience

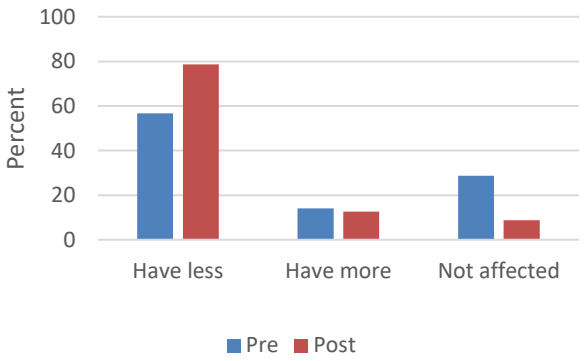


Meinzen Dick, R., M. Janssen, S. Kandikuppa , R. Chaturvedi, K. Rao and S. Theis. 2018. Playing Games to Save Water: Collective Action Games for Groundwater Management in Andhra Pradesh, India. World Development 107(July):40 53.

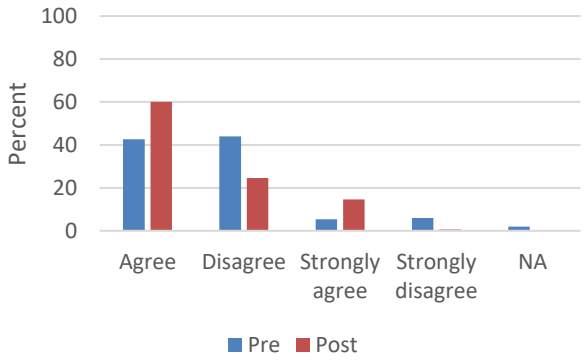
SELECTED RESULTS

- Visible shifts in immediate mental models before and after the game:
  - Groundwater is a shared and depletable resource
  - Communication, collective action, and rules are important for governance
  - Individuals/ crop choices affect groundwater availability

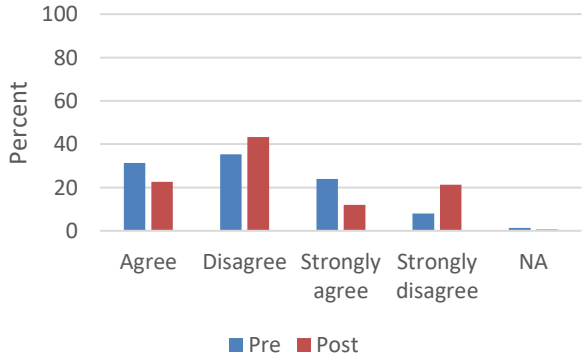
Groundwater availability expectations if other farmers around start pumping more groundwater for irrigation



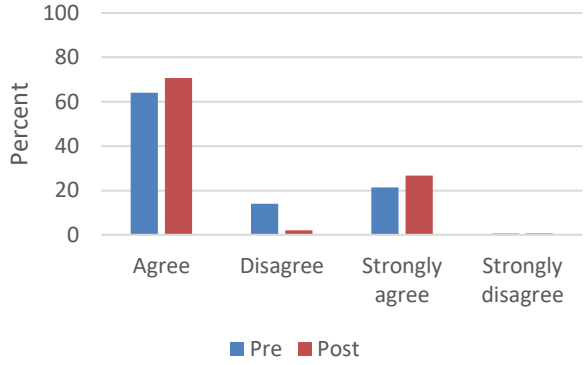
Groundwater use now will affect its sustained availability in the future for all the community



No need for rules to limit wells or groundwater use



Community members should act collectively to manage groundwater



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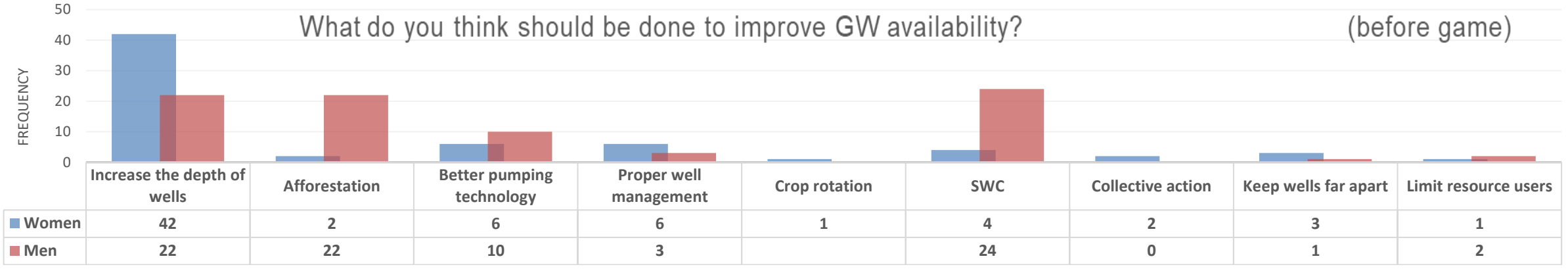
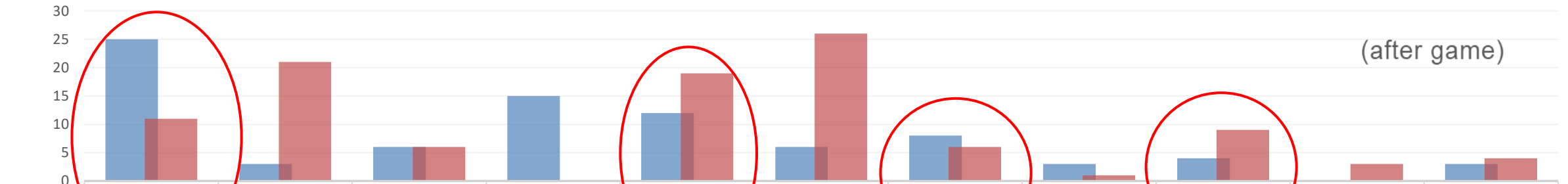
SELECTED RESULTS



	Increase the depth of wells	Afforestation	Better pumping technology	Proper well management	Crop rotation	SWC	Collective action	Keep wells far apart	Limit resource users
Women	42	2	6	6	1	4	2	3	1
Men	22	22	10	3		24	0	1	2



	Increase the depth of wells	Afforestation	Better pumping technology	Cleaning the wells from mud	Crop rotation / growing water saving crops	SWC	Collective action	Keep wells far apart	Implementing rules	Collecting rain water	Teracing
Women	25	3	6	15	12	6	8	3	4	0	3
Men	11	21	6	0	19	26	6	1	9	3	4

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SELECTED RESULTS

Medium term effects

- New learning on GW being a shared aquifer sustains 6 months+ later (FGDs)

- Many reported necessity of establishing rules (contrast from baseline)
  - Some community discussions catalyzed
  - No community level action (rules) yet in Ethiopia; some established in Ghana

Community debriefing meeting, UER, Ghana. Photo credit: Emmanuel Obuobie and Margaret Akuriba

IMPACTS AND KEY LESSONS FOR SMALL SCALE IRRIGATION

- Post-game community debriefing discussion is crucial for community-wide learning and spillover effects
- Refreshers/ long-term engagement needed to ensure sustained retention of lessons and fueling collective action
- Implementation of rules/ collective action is a longer-term process

Community debriefing meeting, Keta, Ghana. Photo credit: Emmanuel Obuobie and Margaret Akuriba

IMPACTS AND KEY LESSONS FOR SMALL SCALE IRRIGATION

- Team-up with extension officers to support community members in determining suitable water-saving crops
  - Address possible 'literal learning'
- Monitor GW changes to see longer-term effects on resource sustainability
- Adapt to context to increase relevance

Women playing game, Ethiopia. Photo credit: Fekadu Gelaw

THANK YOU

Community debriefing meeting, Ethiopia. Photo credit: Fekadu Gelaw