Material and methods

Study area
- Cuttack and Jagatsinghpur districts from Odisha state in eastern India
- are chosen due to the high number of functional WUAs in groundwater that started establishing since the 1970s.

Research design
- Focus Group Discussion (FGD) in 6-10 farmers’ group organized in 20
- WUA from 12 villages.
- 3-4 representative farmers were personally interviewed using a
- structured questionnaire to triangulate the data collected in the FGD
- at the farm level.

Data collected
- Quantitative information on cropping pattern, irrigation provision
- and market accessibility before (farmer’s recall data & published secondary data) and after (survey) a WUA formation.

Survey period

Analytical method
- K-medoids clustering method is utilized to group the WUAs
- reflecting the impact of low-cost irrigation provision and market access on cropping pattern change.

Results

- Farmers representing HD and MD shifted the previous rice-based cropping pattern, i.e. Rice (Rainy season: June-Sept)- Green Gram (Winter season: Oct-Jan)- Fallow (Summer season: Feb-May) to the vegetable-based cropping pattern, i.e. Rice – Vegetables –Vegetables.

- HD farmers mostly cultivated the off-season vegetables and marketed by self to the city market.

- MD farmers grew seasonal vegetables and sold through village traders.

- 51% of cultivated land in ML and 72% in LD were shifted from the previously followed Rice - Green Gram – Fallow to the Sugarcane based cropping pattern and availed the contract sale agreement with a sugar mill.

- 20% of the ML farms’ shift to Rice-Vegetables - Oil seed was also observed, who sold their vegetables to the village traders.

Conclusion

- Vegetable-based crop diversification took place in the WUAs when markets are accessed directly by self or a village trader. 

- Low-cost WUA water and limited direct market accessibility triggered sugarcane specialization for its contracted sale.