



Making Research on Climate Change in Bangladesh More Effective

Exploring a traditional farming approach for climate resilient production in southern Bangladesh

Md. Emdad Hossain

Project Leader

md.e.hossain@cgiar.org



Paper information

- **Authors:** Hossain, M.E., Attwood, S.J., Golam, F., Aleem, N.A., Park, S.E.
- **Project:** Climate SmartFarm (CCAFS)
- **Status:** First Draft
- **Journal:** Water Resources and Rural Development

Overview



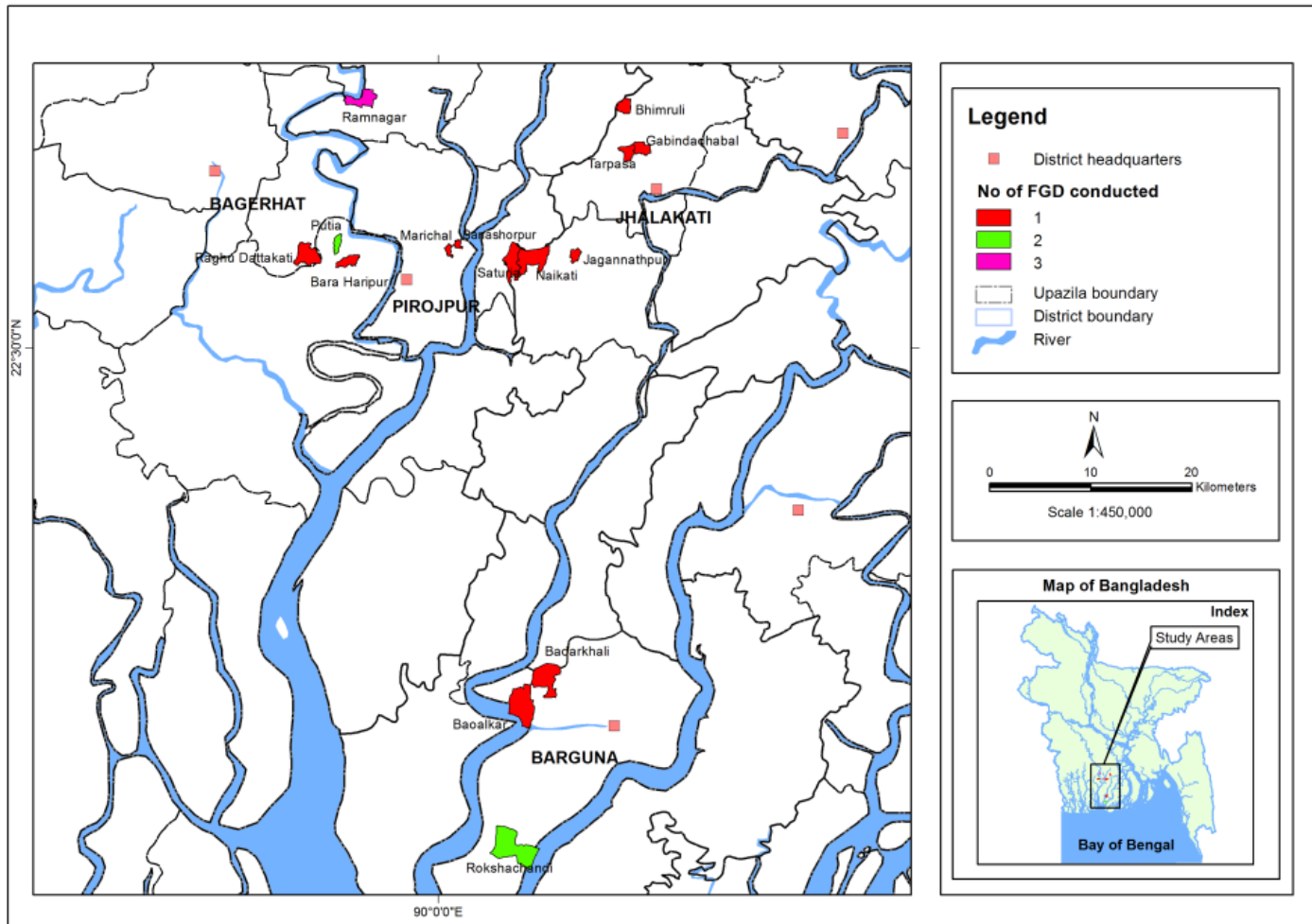
Objective of the study

- first descriptive statistics and data of sorjan systems in Bangladesh
- understanding of diversity, complexity and heterogeneity of the system across multiple locations
- initial examination of frequency and approaches of fish integration into the system
- identification of priority knowledge gaps and future research options

Methodology

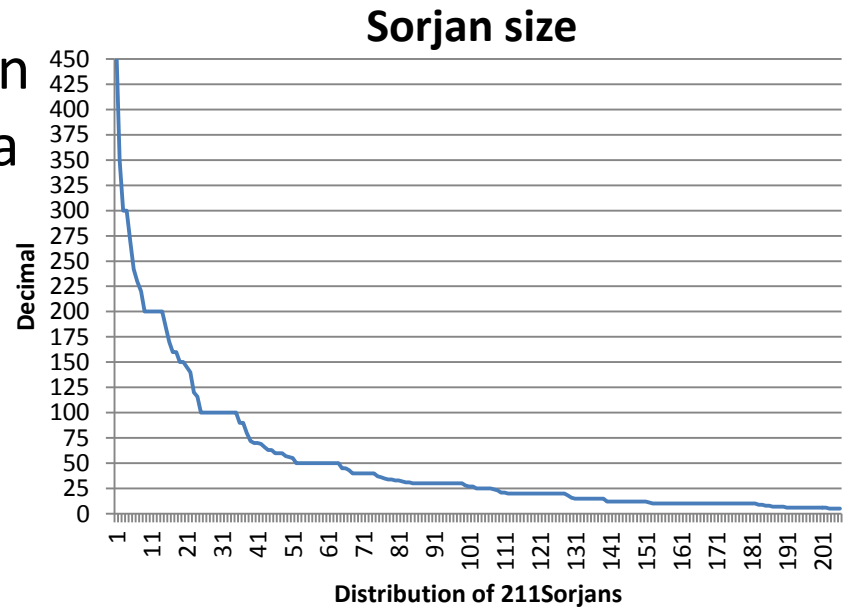
- Systematic literature review
- Focus group discussions
- Key informant interviews
- Observations and pre-testing of 211 sorjan (23rd July 2012 to 2nd August 2012)
- Data treatment and analysis

Study Location



Results: Sorjan size

The majority of sorjans are small in area, with 50% of farmers having a sorjan plot size between 10 and 52.5 decimals, with the median being 25 decimals



Sorjan Type

- Vegetables only
- Vegetables + Fish
- Vegetables + Fish + Fruit
- Vegetables + Fish + Timber



Most common produced crops

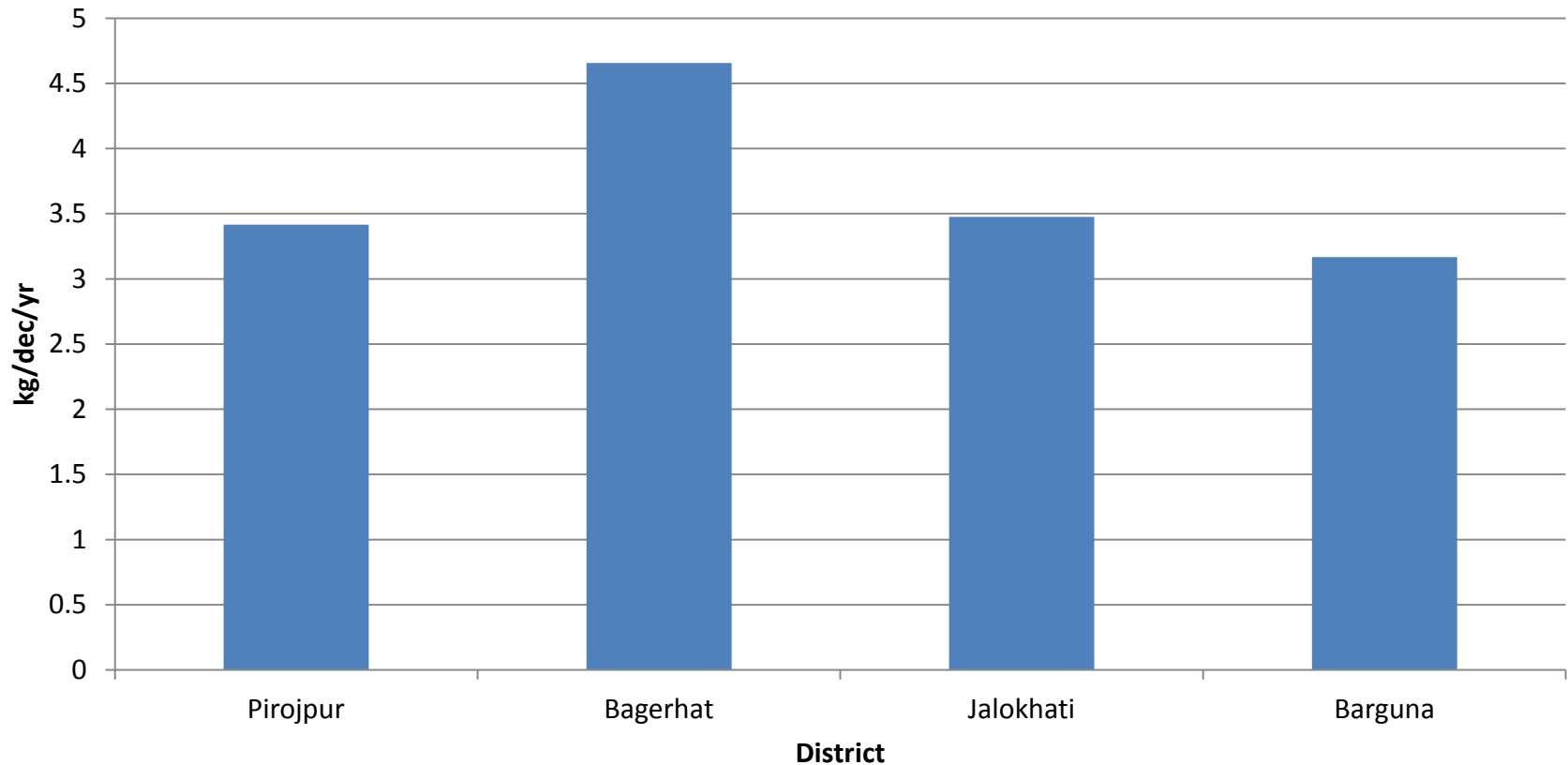
Crop	# of HH	% of HH that produced crop
Fruit	182	88%
Timber	144	69%
Fish	140	67%
Vegetables	88	42%
Sugarcane	3	1%
No crop	3	1%
Total	211	

Sorjan water used for irrigation

District	# of villages
Bagerhat	3 (out of 4)
Barguna	2 (out of 4)
Jholokathi	4 (out of 6)
Pirojpur	4 (out of 5)
Total	13 (out of 19)

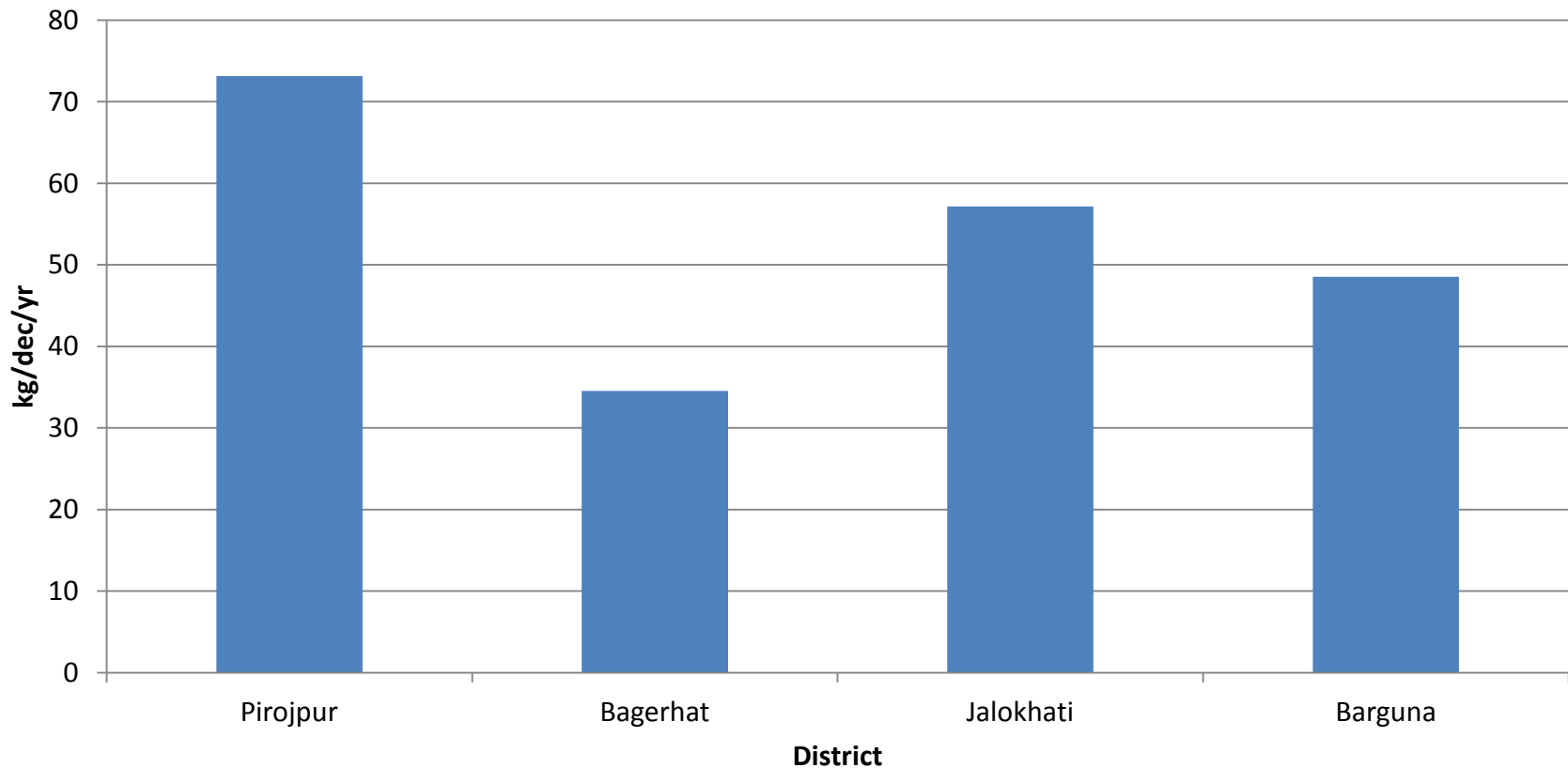
Aveg. Fish production by district

Aveg. fish production (kg/dec/yr) by district



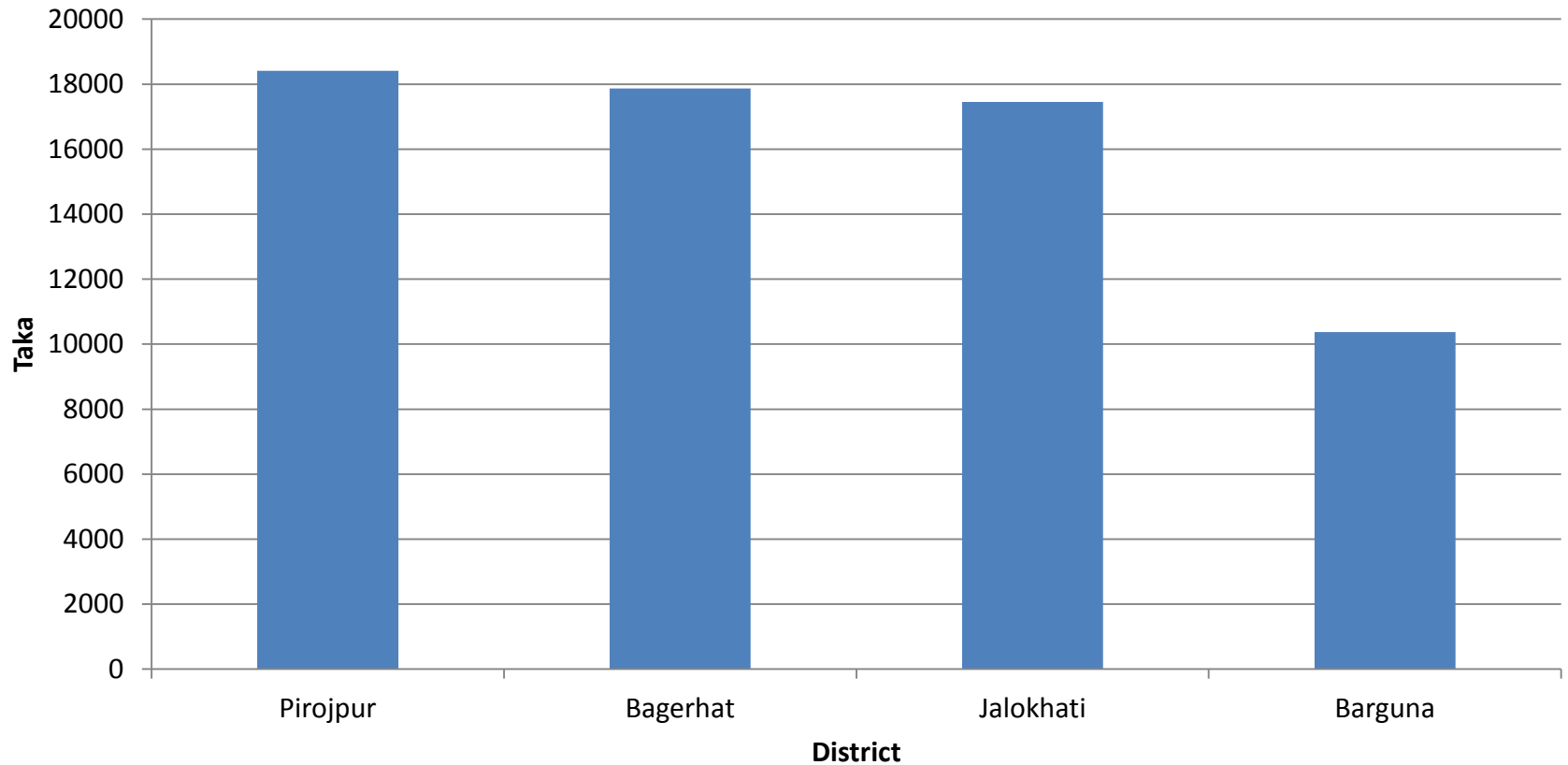
Aveg. Vegetable production by district

Aveg. vegetable production (kg/dec/yr) by district

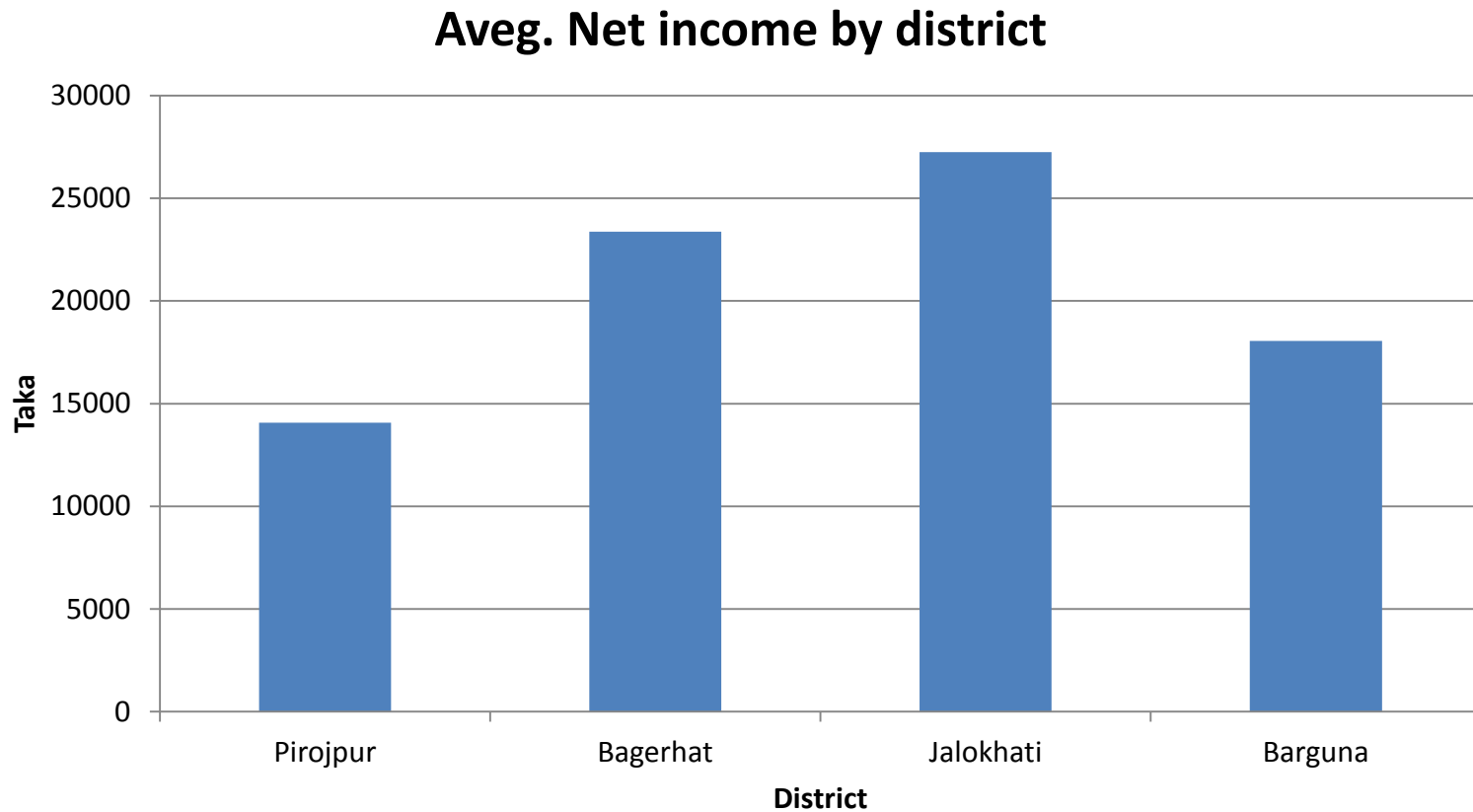


Aveg. Expenditure by district

Aveg. Expenditure by district



Aveg. Net income by district



Constraint to a Sorjan

Constraint identify (from the villages)	# of villages	# of farmers
Credit	18	150
Natural disaster/cyclone/strong wind	6	50
Decreasing production (of fruit, natural fish)	4	40
Land access	9	39
Tidal flood	3	22
Transportation/communication	2	16
Product marketing	1	8
Labour	1	7
Time	1	1
Constraints identify (from literature review)		
Initial startup and labour costs need to factored into observed yields		
Rice did not produce high yields, due in part to rat infestation		
Doubling fish stocks did not necessarily lead to doubled harvest.		
Sorjan systems are labour intensive		
Rice grain yield declined linearly with increasing age of the permanent beds.		

Research opportunity

- Describe more accurately the different types of sorjans and determine how this affects productivity, income, expenditure
- Improved fish management in sorjans,
- Ecosystem service provision in sorjan landscapes,
- Paired production comparisons between sorjans and analogous flat field systems,
- Gender roles on sorjan management, distribution of and access to the produce and ecosystem service benefits emanating from sorjans.

Conclusion

- ✓ Sorjans are often not being utilized to their full productive potential—only utilizing the ridge area, and not the canals.
- ✓ Requires the promotion and extension of more integrated approaches that combine terrestrial and aquatic area of the sorjan.
- ✓ This integrated approach should also include a greater range of crops, capable of tolerating a broader range of environmental conditions (e.g. salinity, submergence, heat, shade).



Making Research on Climate Change in Bangladesh More Effective

Thank you

Md. Emdad Hossain
Project Leader, CCAFS
md.e.hossain@cgiar.org

