

## COMPARATIVE PROFITABILITY OF RICE FARMING IN HAOR AREA OF BANGLADESH: A STUDY ON THE USER AND NON-USER OF COMBINE HARVESTER IN SUNAMGANJ DISTRICT

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### **Executive Summary**

Boro rice farming in the *haor* ecosystem of Bangladesh plays a crucial role ensure livelihood for its dwellers as have no alternative. Traditional human-labour based manual rice harvesting in this area was subjected to capital loss due to early flood, flash flood, heavy rainfall, hailstorm, etc. To overcome these problems, mechanization in harvesting adopting rice combine harvester (RCH) was inevitable and government of Bangladesh provides 70% subsidy on purchasing these machines. This study aimed to explore the adoption patterns of RCH, to estimate the profitability of rice cultivation with and without adoption of RCH, drivers behind RCH adoption and to assess its' welfare impact of in this wetland ecosystem. For this study, primary data was collected from 3 out of 7 haor districts of Bangladesh. From the study area, 300 boro rice farmers, 204 RCH adopters and 96 non-adopters, were selected randomly and interviewed with structured questionnaire. Data were collected during April-May, 2023. To analyse and making inference, descriptive statistics, economic formula, probit model and propensity score matching (PSM) model were used. RCH adopters were younger and more educated, had more knowledge about combine harvesters' benefits, had larger farm and cultivated more in upland soil. Total cost of rice production significantly differed ( $p < 0.01$ ) due to Tk. 7916.13/ha lower harvesting cost. It ensure significantly ( $p < 0.05$ ) higher net return (Tk. 13266.40/ha) for the RCH adopters who earned Tk. 53424.31/ha compared to non-adopters (Tk. 40157.91/ha). Benefit cost ratio (BCR) was significantly ( $p < 0.05$ ) higher for the adopters (1.47) than that of non-adopters (1.33). RCH adoption was positively influenced by age, yield, rice cultivation in upland, timely availability of RCH, repair service availability and perceived labour scarcity mitigation capacity but negatively influenced by family labour used and grain & straw loss in field during harvesting. RCH adoption positively impacted the reduction of cost of production and human labour use and increase in net returns. This empirical study attempted to estimate profitability, identify drivers and impact of RCH adoption in *haor* ecosystem in Bangladesh for the first time. To reap the benefits of this mechanized harvesting, awareness development programmes should be undertaken. Besides, light-weight, small and efficient RCH machine should be developed and disseminated to remove land type barrier and grain loss during harvesting. Timely availability of RCH and its' repair service should be ensured. Innovating year-round alternative use of RCH machine may faster its' turn-over and make it more profitable to its owners.

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