

Title: Factors Affecting Fishers' Attitude and Willingness to use Cage Aquaculture as an Alternative Livelihood for Reducing Fishing Pressure in *Haor* Areas, Bangladesh

Authorship and Affiliations: Shahidul Islam Bhuiya^a, Mohammad Bodrul Munir^{b*}, Abdul Hannan^c, Fozlul Kabear^a, Md. Jamal Hossain^a, AKM Nowsad Alam^d,

^aDepartment of Fisheries (DoF), Bangladesh

^bFaculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak

^cDept. of Aquatic Animal Health Management, Sher-e-Bangla Agricultural University, Bangladesh

^dDept. of Fisheries Technology, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh

***Corresponding author:** Mohammad Bodrul Munir, Department of Aquatic Sciences, Faculty of Resource Science and Technology, Univeriti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak. Phone: +60143047193; E-mail: mmbodrul@unimas.my

Abstract: Inland capture fisheries are providing cost of livings of about 1.2 million BDT in Bangladesh. However, overexploitation causing the declination of the abundance of native fish species which adversely affects the livelihoods of *haor* dwellers. The present study was conducted in two *haor* villages (Sutarpara and Changnoagaon) of Kishoreganj, Bangladesh to explore the factors (economic and non-economic) affecting fishers' attitude and willingness about cage aquaculture considered as livelihood alternative for reducing fishing pressure. The methodologies applied to do this study were semi-structured face-to-face interview, key informants and questionnaire survey using Likert scale (LS), focus group discussions (FGD). The result revealed that willingness to switch from traditional way of fishing to cage aquaculture activities was significantly ($P < 0.05$) higher in those fishers' groups that had more inclination in fishing activities. Simultaneously, non-economic factors like powerful traders and fishers, traditional belief, taking risk, launching period of cage aquaculture venture and investment

duration played vital role in decisions on whether to fish or not. The economic factors were fewer in number than non-economic factors. This comparative research is significantly important for future social aquaculture researchers as well as the country policy makers for giving emphasis to gather data based on the prevailing economic and non-economic factors to innovate alternative livelihood activity concurrently.

Keywords: Cage aquaculture, economic and non-economic factors, Likert scale, FGD, Changnoagaon and Sutarpara haor

1.0 Introduction: The global dense population lead to overexploitation of traditional ecosystem in the world which includes the fishing sector that increased 33.1% fishing pressure of world fish stocks are as well subject to overfishing (SOFIA 2018). Over 160 million people lead their livelihood based on the available natural resources in Bangladesh of which 12% are heavily and lightly depending on the fisheries resources (Shah, 2003). Therefore, the inland and marine fisheries (closed and open) had a production volume of 4.13 million metric tons in 2016-2017 (SOFIA 2018). The capture fisheries production in Bangladesh is decreasing due to overexploitation and other associated reasons like habitat destruction and water pollution. The aquaculture production in Bangladesh has been increased still over years because this sector has been adopted with some dynamic innovative aquaculture technologies. The community based cage aquaculture in open and closed waterbodies is one of them.

The fishing communities are changing their livelihood from traditional wild fishing to agriculture with other example of daily income-oriented works. Moreover, the decreasing of fish resources compels the fishers in difficulties who relying on fishing only (Alam et al., 1995, Rejwan et al., 2012). The current and unexpected situation is greatly the result from the introduction of destructive fishing gears and methods along with the illegal fishing (catching mother fishes,