



Barriers to pond fish culture entrepreneurship in Tripura: An empirical study

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ABSTRACT

The study on pond fish culture entrepreneurship was undertaken in Tripura through survey among 240 fish farmers. Seven attributes, viz. innovativeness, farm decision making, achievement motivation, knowledge of farming enterprises, risk taking ability, leadership ability and cosmopolitan nature were measured to study the overall entrepreneurial attribute of the fish farmers. Around 69% of the respondents have medium level of entrepreneurship and over 85% possess medium level of aspiration. Among the socio-economic and infrastructural factors that hinder entrepreneurship were lack of technical know-how on pond management, low level of education, social norms and beliefs, marketing and financial problems, poor transportation and storage facilities. The authors argue for creation of enabling infrastructure to promote entrepreneurship in pond fish culture.

Key words: Barriers, Entrepreneurship, Entrepreneurial attributes, Pond fish culture

Economic progress of the state Tripura in north eastern region of India is hindered due to its geographical isolation. The fisheries and aquaculture is considered to be an important economic activity for income generation, gainful employment and to ensure nutritional security of rural masses in Tripura (Das 2012). Fish is highly demanded food commodity as indicated by 95% people of Tripura are fish eater and also the state registered highest per capita consumption of fish amongst the inland states in the country. The import of fish is persisting from states like West Bengal, Andhra Pradesh and from neighbouring country, Bangladesh to fill the gap between demand and supply (Das *et al.* 2013). Despite the state having more than 1.5 lakh fish farmers, with water area of 13,685.33 ha spreading over 130,371 ponds it produces only 30,960.62 MT of fish at an average productivity level of 2,262.32 kg/ ha per annum (GoT 2012). As observed by the Public Accounts Committee (2012) the reliability and correctness of the data on production and productivity was not assured as no mechanism exists to crosscheck and validate the data collected by the Fishery Assistants. The data on fish inflow affirmed that the total quantity of inflow from outside the state increased from 10% in 2004–05 to 26% in 2008–09 of the total requirement.

Entrepreneurial activity is a vital source of innovation, employment and economic growth (Birch 1979, Storey

1994, Carree and Thurik 2003, Parker 2004, Van Stel *et al.* 2005). Greenberger and Sexton (1988) focused that entrepreneurship is a multidimensional process that incorporates individual characteristics and environmental factors. Venkataraman (1997) and Shane and Venkataraman (2000) argued entrepreneurship as an activity involves the nexus of 2 phenomena: the presence of lucrative opportunities and the presence of enterprising individuals. To promote entrepreneurship we need to identify the barriers that affect entrepreneurship development and solution to those barriers and promote new policy measures to create new ventures. Though the barriers are not similar for all the individuals of a society but some of the obstacles are common to all people, some groups find specific obstacles, namely, women, young people, people with disabilities, ethnic minorities, unemployed and people living in rural or distressed areas (Martins *et al.* 2004). Identifying the impediments to create a new business, in society and in under-represented groups, can help to eliminate the barriers and to 'make entrepreneurship accessible to all'. Moreover, an understanding of the inhibiting factors or barriers would help prospective entrepreneurs to develop a strategy to overcome them. With this back drop it is felt that if the potential contributions of aquaculture in Tripura are to be realized, then issues and challenges faced by the entrepreneurs need to be determined. Hence, an attempt has been made to identify the individual and contextual variables which inhibits or promote entrepreneurship among the fish farmers of Tripura in pond fish culture.

MATERIALS AND METHODS

The present study was carried out in Tripura during 2012 by selecting two districts. The west and south Tripura

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districts were selected based on maximum concentration of fish farmers. Further, 2 blocks from each district and 5 villages having higher density of fish farmers from each block were selected randomly. Thereafter, 12 respondents were selected randomly from each village. Thus the sample comprises 240 respondents. The data were gathered using pre-tested structured interview schedule. Based on the available literature and opinion of the experts in the field of extension, seven selected components of entrepreneurial behaviour, viz. innovativeness, farm decision making, achievement motivation, and knowledge of farming enterprise, risk taking ability, leadership ability and cosmopolitaness were measured in this study. The scales developed and used by earlier researchers were applied with suitable modifications. The attributes namely innovativeness, knowledge of farming and leadership ability of the fish farmers, were measured using scale applied by Chandramouli (2005). Similarly variables like decision making and risk taking ability of the farmers were measured using the scale of Nagesha (2006). The scale devised by Cantril (1965) was used for measuring level of aspiration. Similarly impediments in pond fish culture were also identified. *The pre-tested structured interview schedule was administered for collection of data, and analysis of data has done using multidimensional scaling technique of SPSS-16 besides conventional correlation analysis as part of exploratory approach of data collection.*

RESULTS AND DISCUSSION

All other factors notwithstanding, the success of an entrepreneurial venture depends on the entrepreneur. The entrepreneur is the leader and driver of the venture, and requires certain skill-set and orientation for success. In the present study innovativeness, farm decision making, achievement motivation, knowledge of farming enterprises, risk taking ability, leadership ability and cosmopolitaness have been taken to study the entrepreneurial attributes of the fish farmers. The summation of scores of all these seven components constitutes the entrepreneurial attributes score of the respondents. The distribution of respondents according to their entrepreneurial attributes is presented in Table 1.

It was observed that majority (69.17%) of the respondents possessed medium level of entrepreneurial attributes. Whereas, 17.08% of them possessed high entrepreneurial attributes and remaining 13.75% of the

Table 1. Distribution of respondents according to their overall entrepreneurial attributes

n=240		
Category	Frequency	Percentage
Low ($< X - 1$ SD)	33	13.75
Medium ($X \pm 1$ SD)	166	69.17
High ($> X + 1$ SD)	41	17.08
Total	240	100

X, 48.9; SD, 7.74.

Table 2. Distribution of respondents according to their level of aspiration

n=240		
Category	Frequency	Percentage
Low ($< X - 1$ SD)	03	1.25
Medium ($X \pm 1$ SD)	205	85.42
High ($> X + 1$ SD)	32	13.33
Total	240	100

X, 14.52; SD, 3.93.

respondents possessed low entrepreneurial attributes. This result revealed that majority of the fish farmers in the state are potential entrepreneurs. Pandey and De (2015) reported that majority of tribal fish farmers of Tripura possessed medium level of entrepreneurial attributes. This is in conformity with the findings of Ram *et al.* (2014) and Boruah *et al.* (2015) in north eastern part of India.

Level of aspiration: At 73, India ranked among the worst in global entrepreneurial performance. One of the reasons for India's position was that though there were many self-employed people across the country, they tended to have "low growth aspirations", said Professor Erkkö Autio of Imperial College Business School. "There is a lot of self employed activity but it tends to be of low quality, driven by individuals becoming self employed because they cannot find high quality jobs," he said (Ram 2012). This seems to be true for Tripura as indicated in the Table 2.

An individual's aspiration level is an important element that determines the quality or the number of available options to the individual. Majority (85.42%) of fish farmers had medium level of aspiration (Table 2), followed by 13.33% with high aspirations level and only 1.25% of them showed low aspiration. Individuals who have different "aspiration levels" (March and Simon 1958, Herron and Sapienza 1992) or "intentions" (Shapero 1975, Ajzen 1988) tend to have different sets of opportunities because the locus of search is directed by an individual's aspiration level (Simon 1955). Whereas, Herron and Sapienza (1992) pointed out, an individual's aspiration level is influenced by abilities (Hollenbeck and Whitener 1988), the values and traits (Hollenbeck and Whitener 1988), past achievements (Bandura 1982), and the environment (March and Simon 1958).

Relationship between socio-economic characteristics and entrepreneurial attributes: The correlation analysis between entrepreneurial attributes and socio-economic variables performed to visualize how socio-economic attributes of fish farmers are associated with their entrepreneurial attributes. The results revealed that out of 10 variables selected, 7 variables such as education (r, 0.183), caste (r, 0.198), income (r, 0.144), aspiration (r, 0.544), mass media participation (r, 0.139), extension participation (r, 0.173) and information usage (r, 0.368), were positively correlated with entrepreneurial attributes and the correlation coefficient for all the seven variables were turned out to be significant (Table 3).

Table 3. Association between personal, socio-economic and psychological characteristics with entrepreneurial attributes

Variables	Entrepreneurial attributes
	'r'
Age	0.064 ^{NS}
Education	0.183 ^{**}
Caste	0.198 ^{**}
Land holding	-0.020 ^{NS}
Social participation	0.012 ^{NS}
Income	0.144 [*]
Level of aspiration	0.544 ^{**}
Mass media participation	0.139 [*]
Extension participation	0.173 ^{**}
Information usage	0.368 ^{**}

*Significant at 0.05 level of probability; **significant at 0.01 level of probability; NS, nonsignificant.

Hence, it can be inferred that respondents having higher education, caste, income, aspiration, mass media participation, extension participation as well as usage of various farm information sources possessed greater degree of entrepreneurship attributes. Patel and Sanoria (1997) observed that entrepreneurship was influenced by various socio personal and economic factors including caste; Rao (1975) reported caste and community were potential factors in identifying entrepreneurship and socio-economic status and caste emerged as the most important factors through which higher indirect effect of other factors were channeled reported by Kumar *et al.* (2013).

Problems faced by the fish farmers to undertake entrepreneurial activities: Both entrepreneurship practitioners and public policy makers have shown a growing interest in the contextual factors in which entrepreneurial activities take place for example, international organizations such as the Organization for Economic Co-operation and Development (OECD) and European Union (EU) are focusing on the environmental drivers of entrepreneurship, especially the social and cultural factors that influence the individual career choice to be an entrepreneur and to create a new business (OECD 1998, 2000, European Commission 2004, 2006). Within the field of entrepreneurship many studies have drawn on social network analysis to illustrate entrepreneurs' access to resources that are not possessed internally (Ostgaard and Birley 1994, Bowey and Easton 2007, Casson and Della Giusta 2007). The underlying idea is that, although entrepreneurs usually hold some of the resources necessary to create a business (e.g. ideas, knowledge and competence to run the business), generally they also need complementary resources which they obtain through their contacts (e.g. information, financial capital, labour) to produce and deliver their goods or services (Aldrich and Zimmer 1986, Teece 1987, Cooper *et al.* 1995, Hansen 1995, Greve and Salaff 2003, Ribeiro-Soriano and Urbano 2009). In view of the above notions data pertaining to contextual factors involve in pond fish culture entrepreneurship were analysed and presented in Table 4.

Table 4. Frequency distribution of problems faced by fish farmers'

n=240			
Constraints	Frequency	Percentage	Rank
Lack of technical know-how	134	55.83	I
Low level of education	127	52.91	II
Social norms and beliefs	107	44.58	III
Marketing problem	100	41.66	IV
Financial problem	89	37.08	V
Transportation facilities	78	32.50	VI
Storage facilities	66	27.50	VII
Lack of exposure to mass media and information etc.	54	22.50	VIII
Poaching and poisoning	54	22.50	VIII
Others	26	10.83	IX

Multiple responses possible.

Lack of technical know-how: Lack of technical know-how (Ranked I) was the major barrier (Table 4) in pond fish culture as reported by majority (55.83%) of the fish farmers. Saha (2011) reported lower knowledge index (54.25) of fish farmers of Tripura and maximum knowledge gap was observed with respect to water exchange and quality monitoring followed by fish handling, storage, transportation, liming and feeding management. Farmers did not have scientific knowledge regarding water quality such as pH, temperature, DO etc. The knowledge regarding application of aerator in water was also very poor. This may be due to poor extension service and lack of information. Farmers desirous of starting pond fish culture often do not get necessary information and advice from the extension agents (both GOs and NGOs). The number of field extension workers is very limited in public sector extension service which makes it difficult for them to satisfy information requirement of all the farmers. Input and subsidy driven extension system may be another reason as it does not lay adequate emphasis on educating farmers.

Low level of education: Education is an important factor in determining the entrepreneurial orientation in individual (Scherer *et al.* 1989, Nair *et al.* 1998). Performance in the entrepreneurial sector has a clear significantly positive relationship with schooling: the higher the type of schooling (such as college graduate and postgraduate) and the more years of education, the higher the chances of better performance (Sluis and Praag 2008). Majority (52.91%) of the fish farmers reported that low level of education among them was potential barrier to take up pond fish culture as entrepreneurial activity. Among the identified barriers it ranked II. In the present study, the literacy rate of the respondents was 92.8% whereas, 33.75, 27.92, and 18.75% only were educated up to primary, middle and high school level, respectively.

Social norms and beliefs: Around 45% of the respondents indicated that existing norms and beliefs (Ranked III) was one of the entry barriers to entrepreneurship in fish culture. Shukla and Awasthi (2001) reported this fact and they

observed that one of the major entry barriers to entrepreneurship was disapproval of the family followed by lack of awareness about entrepreneurship and a general belief that it involves a great deal of risk. A business, with uncertainty and insecurity, discourages majority of the youths to keep away from an entrepreneurial career. Because of compulsions and social pressures, they do not wish to take risk of social security and hence, prefer salaried jobs. Moreover, entrepreneurship is not considered a respectable career in comparison to bureaucratic jobs or other professions like medical, engineering, management in Indian society as white collar jobs enjoy a better social status.

Marketing problem: The disposal of farm output or marketing (Ranked IV) was found to be one of the important impediments to entrepreneurship in pond fish culture and this problem was identified by 41.66% of fish farmers. Das *et al.* (2013) identified major marketing constraints faced by the fishers of Tripura, these were the higher number of middlemen (mean score: 71.05), followed by high marketing cost (70.30), fluctuations in prices (68.32), poor storage facilities (67.33), lack of market information on price (66.65), delay in settlement of sale proceeds (66.11), lack of drinking water facilities in market yard (65.54), high degree of dependency on middlemen for financial support (65.43), poor infrastructural facilities in the market (65.06) and absence of cooperative marketing (62.93).

Financial problem: Capital remains indispensable to start and run any enterprise. More than one-third (37.08%) fish farmers reported that unavailability of finance (Ranked V) was a barrier for the pond fish culture entrepreneurship. Out of 1.47 lakh fish farmers of the state, 1.30 lakh do not get any institutional credit for their activities (Anonymous 2012). In terms of sanction of projects, fishery sector does not get adequate attention. Out of 819 project proposals for funding support only 256 were sanctioned in the year 2014. Moreover, the credit deposit (CD) ratio in the state was found to be 39% at end of December 2013, which was less than the Reserve Bank of India (RBI) stipulated norm of 60% (Anonymous 2014). It was opined that considering the potential of fisheries sector in the state, credit flow is to be intensified to this important sector through KCCs.

Transportation facilities: Surface transport system, particularly the road especially National Highways and rail transports are the most important means for the development of trade and commerce in any region. In Tripura out of the total road length of 19,697 km in 2012–13, there were 39.13% black topped road, 24.42% brick soled road and remaining 36.45% roads were earthen. Tripura still remained backward in terms of railway connectivity and total railway link is only 153 km (GoT 2013). About one-third (32.50%) fish farmers reported that poor connectivity and transportation were the infrastructural constraints for entrepreneurship development in aquaculture and allied activities. Bulk amount of fish produce cannot be disposed off in the local markets directly to the consumers.

Storage facilities: The presently available post-harvest

technology and storage facilities in the state are inadequate and are of preliminary nature. About 28% fish farmers reported the shortage of cold storage facility. Fish being perishable, cold storage facilities need to be provided at the production as well as consuming centers. At present, there is acute shortage or even absence of this facility in the state. At present the state has only 14 multipurpose cold storages. If the fishermen can organize their co-operative societies, the societies can provide insulated vans for transport and cold storages.

Lack of exposure to mass media and information etc.: Media has an important role to play in raising the level of desirability and future intention to engage in 'entrepreneurship' which can then be more readily translated into entrepreneurial outcomes through initiatives designed to develop skills and capacity building aimed at business start-up (Levie *et al.* 2010). About 23% fish farmers had indicated that there is lack of mass media exposure and information about pond fish entrepreneurship. Information is the most essential element at various operational levels of a business, especially in the decision making process. The value of information is directly dependent on the content, relevance and timely of information, in this context, for access to the right information at the right time, one has to aware of the various sources of information, the service being offered and existing information system (Jain 2007).

Poaching and poisoning: At times village politics in rural areas of Tripura spoils the development chances. Conflict between families is quite common, which generate hatred leading harm to fish crop. They sometimes poach fishes from ponds or add poison to damage fish crop out of jealousy. Though, only 22.5% farmers had viewed it as barrier for pond fish culture entrepreneurship.

Others: Substandard inputs like fish seed, feed, acidic nature of soil, seasonal and small size of fish pond were the other reasons as reported by the fish farmers which discharge them for commercialization of fish culture in the state. In absence of regulatory mechanism or legislation in freshwater aquaculture, quality control of fish seed and feed is difficult. In the state majority (81.25%) of fish farmers had small landholding which hinder the application of modern science and technology pertains to pond fish culture. About 11% fish farmers reported these problems they were encountering to take up fish culture as a venture.

Table 5. Ranking of suggestions for taking up entrepreneurial activities

n=240			
Suggestions	Frequency	Percentage	Rank
Entrepreneurial education/training	185	77.08	1
Promoting cooperatives	180	75.00	2
Improving marketing systems	166	69.16	3
Policy support for entrepreneurs	57	23.75	4
Easy availability of finance	42	17.50	5

Multiple responses possible.

Suggestions made by fish farmers for taking entrepreneurial activities were entrepreneurial education/training (77.08%, Ranked I), promoting cooperatives (75%, Ranked II), and marketing (69.16%, Ranked III). Other suggestions were policy support for entrepreneurs (23.75%), easy availability of finance (17.50%), are necessary for taking up fish culture as a venture (Table 5). It is important that enabling infrastructure in terms of training and capacity building; institutional credit; marketing including storage and transport etc. are in place to promote pond fish entrepreneurship in Tripura.

Despite several constraints in rural areas of the state, development of entrepreneurship in pond fish culture has got huge potential. The reason being the majority of the fish farmers of study area possess medium level of entrepreneurial attributes and aspiration which are vital as well as intrinsic factors in entrepreneurship development. Further, socio-economic factors identified by this study needs to be addressed to promote entrepreneurship in pond fish culture. The potential barriers identified, such as technical know-how on pond management, educational attainment, social norms and beliefs, may be addressed through training and motivation, publicizing entrepreneurial opportunities, providing techno-economic support, offering incentives and recognition, creation of forum for entrepreneurs, ensuring access to information. The support services such as marketing, finance, transportation and storage facilities are to be improved to foster entrepreneurial activity in the state.

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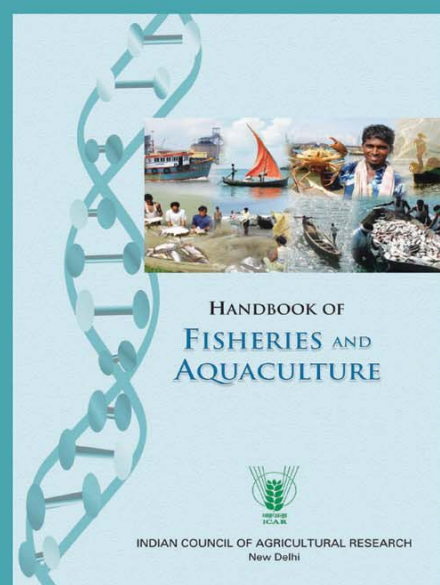
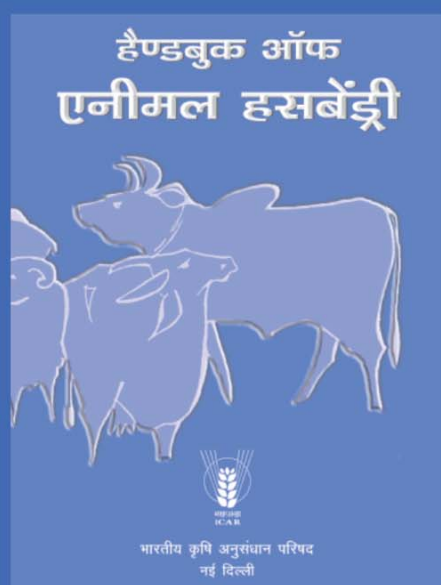
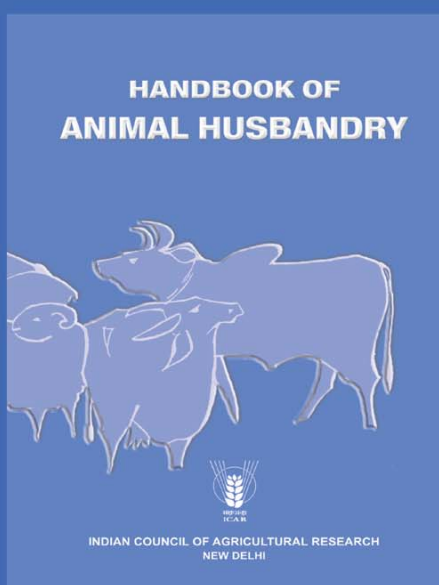
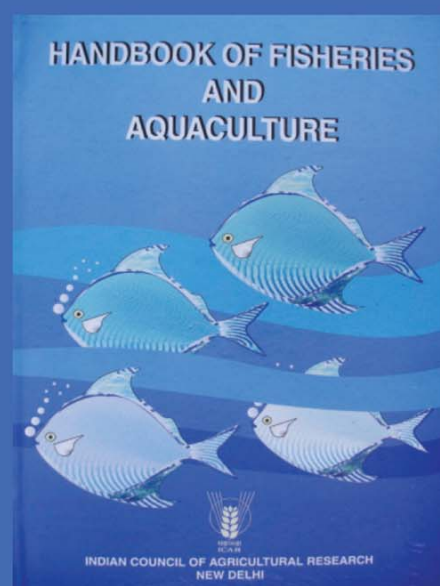
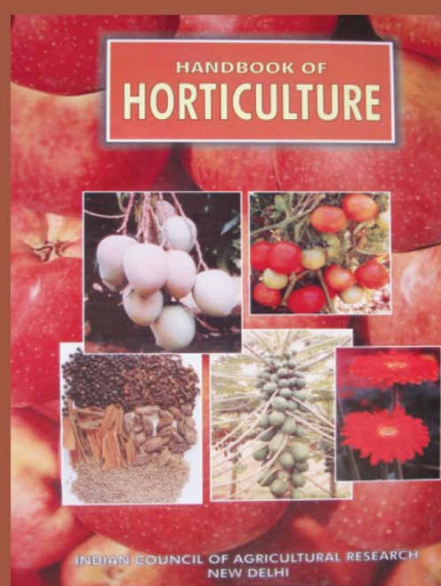
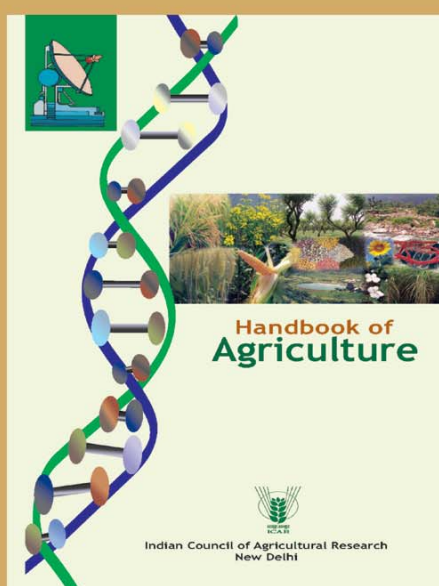
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