

Socio-Psychological Characteristics and Perceived Scope, Constrain of Cage culture in Reservoir of South India.

BALAJI GUGULOTH* J.L. RATHOD¹

Phd Scholar*, Professor¹,

Department of Studies in Marine Biology

PG Centre Karwar, Karnatak University, Dharwad, Karnataka, India

Communication Email: balajiguguloth2@gmail.com

Abstract:

A study of the socio-Phycological characteristics and perceived scope conditions is a prerequisite for the suitable design and successful implementation of any project, training, demonstration, or government developmental programs. The present study was conducted to assess the Socio-Psychological Characteristics and perceived scope, constrain of cage culture in reservoir of Telangana, along with the strategies for promotion of cage farming. Most of the respondents exhibited medium level of innovativeness. economic motivation reveal that a majority of the respondents (66.67%) had medium level of economic motivation followed by low (24.67%) and high (8.67%) levels. This implies that majority of fishermen had medium level of economic motivation. farmers had medium and high level of decision-making behaviour. Perception about the cage culture practices in fisheries was measured in terms of their reliability, cost, complexity in operation, usefulness, need and willingness. 52.00% of the respondents perceived the cage culture to be highly reliable. From the findings, it could be concluded that cage culture were perceived to be reliable by a majority of the respondents. more than three-fourths of the respondents (80.00%) perceived the cages to be costly of which 56.00 per cent of the respondents perceived the cost of cages as very high and 24.00 per cent of the respondents perceiving the cost as moderately high. Only one-sixth (12.00%) of the respondents perceived the cost to be affordable. From the findings, it could be concluded that a majority of the respondents perceived the cost of cages to be high. The cage farmers are the key stakeholders of the reservoir fisheries sector. Cage farming is a technology where fishes being enclosed in a net cage which allows free flow water and can be reared fish from fingerling to marketable size. Telangana is the 29th state (formed in 2014) mainly consists of Dams, Reservoirs, Inland tanks, Ponds and Lakes so far, research studies has not been undertaken on Reservoir cage farming in Telangana. Cage culture is an aquaculture production system where fish are held in floating net pens. Cage culture of fish utilizes existing water resources but encloses the fish in a cage or basket which allows water to pass freely between the fish and the pond permitting water exchange and waste removal into the surrounding water.

Keywords:

Socio-Psychological, perceived scope, constrain of cage culture in reservoir.

Introduction

Based on the study and the discussions held with the fisherfolk and extension functionaries, the following strategies are suggested to improve the cage culture practices in fisheries. Organising training programmes periodically on cage culture will enhance the knowledge on their prospective application and skills to operate the cage culture and that will further improve the effective usage of these tools by fisherfolk. The training programmes need to be organised in the villages with consultation local fishermen association in which most of the fishermen were members. The training should be conducted with experts from Fisheries University, Fisheries Colleges, Krishi Vigyan Kendra, Fisheries Research Station, CIFA, CIFRI, NFDB and other relevant organisations. Most of the respondents in the study area (80.67%) perceived the cage farming to be useful in fishing, of which 62.67 per cent perceived it to be highly useful. Most of the respondents (59.33 %) expressed their willingness to do cage farming. However 14.00 per cent of the respondents were not willing. From the findings, it could be concluded that most of the respondents were willing to do cage farming. Majority of the respondents (58.00%) had medium level of positive perception about practice of cage culture followed by low (28.67%) and high levels (13.33%). Most of the respondents felt the knowledge on Cage Fish Culture (86.67%), market information on catch arrivals, price trend and demand of fish varieties (83.33%), hygienic handling of fishes at cages (72.67%), daily weather report wind direction and speed (59.33%). This kind of information need could be attributed to their inclination to become familiar with the operation of cage farming, to maintain the cage properly and to avail the benefits of the various welfare schemes that will have economic implications on the part of the respondents. Respondents perceived the utility of the cage culture on feed reduction and weather conditions of the reservoir which will help to avoid unnecessary ventures will improve the scope for their application in fishing. Besides these two benefits, facilities provided by the cage culture in improving communication network during fishing (84.00%), perceived as providing scope for improving the cage farming. Most of the respondents felt the constraints on economical support for the purchase of feed and seed (86.67%), language problem in understanding the technical training (85.33%), lack of knowledge on operation of cage farming (65.33%) and no service centre and experts for the repair work cage accessories (62.67%). As eliminating these kinds of constraints could help the farmer to overcome the problems during their farming operation, these have to be addressed properly to improve the cage farming practices in addition to these a considerable proportion of the respondents felt the constraints like lack of training support on proper utilization of cages (56.67%). This kind of constraints should be addressed by conducting hands-on training on operation of the cages and by providing need based information to be fisherfolk frequently through these applications.

A study of the socioeconomic conditions is a prerequisite for the suitable design and successful implementation of any project, training, demonstration, or government

developmental programs. The present study was conducted to assess the socioeconomic characteristics namely education, employment, income levels from aquaculture, and other farm and nonfarm activities of fish farmers of Telangana, along with the status of fish farming and livelihood of the fish farmer. The fish farmers are the key stakeholders of the fisheries sector

Scope of the study

The findings of the study would reflect the socio-economic condition of reservoir cage farmers. It would bring to light aware the study on extent of technology for promoting and strategies in reservoir cage farming and culture aspects as well. The study will document the culture practices, production levels, funding sources, and income earnings. It investigates the constraints faced by the reservoir cage farmers and suggests policy recommendations for improving the socio-economic and livelihood status of reservoir cage farmers in selected district such as Khammam, Karimnagar, Mahaboobnagar, Nirmal, Nizambad, Sangareddy of Telangana state.

Materials and Methods

Sources of data

During the collection of data, both primary and secondary sources has been Used Primary data were collected from cage farmers whereas secondary information was procured from District Fisheries officer. Socioeconomic research variables different variables were identified in socio-domain viz., the profile of fish farmers - personal, socioeconomic, psychological, communication, and situational characteristics was included. A structured interview scheduled was developed integrating all the queries to achieve the objectives set for the study. The collected data was tabulated for statistical analysis.

Selection of the respondents

Total number of cages sanctioned 240 for which available and registered farmers 740 fishermen in that actively involved in the management of cages 15 fishermen, which are selected from six districts, 150 progressive respondents were selected randomly to collect the primary data as per the objectives of the study and the reservoir-wise sample size.

The data was collected from the respondents through personal interview.

Data analysis : Statistical analysis

Percentage calculated by using mean statistical tool like MSExcel was used.

Table 1. District-wise distribution of selected respondents for the study*(n=150)*

SI. No.	Districts	Total number of cages Sanctioned	Number of respondents selected
1	Khammam	80	34
2	Karimnagar	40	12
3	Mahabubnagar	20	12
4	Sangareddy	30	26
5	Nizamabad	30	54
6	Nirmal	40	12
	Total	240	150

Table 2. Reservoir-District wise distribution of selected respondents for the study*(n=150)*

SI. No.	Name of the Reservoir	District	Total number of Fishermen under cage unit	Number of respondents selected
1	Lower Manair Dam	Karimnagar	100	12
2	Palair reservoir	Khammam	80	12
3	Lankasagar reservoir	Khammam	80	10
4	Wyra	Khammam	100	12
5	Singoor reservoir	Sangareddy	40	12
6	Bogulampally, Husnabad reservoir	Sangareddy	40	14
7	Alisagar reservoir	Nizamabad	40	15
8	Gangicheruvu (Renchal)	Nizamabad	40	12
9	Ooracheruvu (Velmal)	Nizamabad	40	12
10	Ashoksagar	Nizamabad	40	15
11	Koilsagar reservoir	Mahabubnagar	100	12
12	Kadam Project	Nirmal	40	12
	Total		740	150

Results and Discussion

Socio-Psychological Profile of Reservoir Cage Fishermen

The socio-personal and economic characteristics of reservoir cage farmers will give a profound influence to determine the livelihood status and background development progress among the respondents. About 21 variables have been selected based on judges' opinion and the results are discussed below.

1. Innovativeness

Table 3. Distribution of the respondents according to Innovativeness

(n=150)

Sl .No.	Category	Number	Percentage
1.	Low (<19.96)	9	6.00
2.	Medium (19.96-23.30)	124	82.67
3.	High (>23.30)	17	11.33
	Total	150	100.00

Source: Primary data

From the results presented in Table 3, it could be inferred that most (82.67%) of the respondents had medium level of innovativeness followed by high (11.33%) and low (6.00%) levels. From the findings, it could be concluded that the most of the respondents exhibited medium level of innovativeness. The results corroborated with the findings of Veeraputhiran (2000) and Jeeva, *et al.* (2011).

2. Economic motivation

Table 4. Distribution of the respondents according to economic motivation

(n=150)

Sl .No.	Category	Number	Percentage
1.	Low (<21.28)	37	24.67
2.	Medium (21.28-23.14)	100	66.67
3.	High (>23.14)	13	8.67
	Total	150	100.00

Source: Primary data

Data presented in Table 4 reveal that a majority of the respondents (66.67%) had medium level of economic motivation followed by low (24.67%) and high (8.67%) levels. This implies that majority of fishermen had medium level of economic motivation. This finding derives support from the works of Arivukkarasu and Sujathkumar (2005) and Senthil kumar (2008).

3. Decision Making Behaviour

The term decision making behavior denotes the degree by which the respondent is able to participate in decision making process in cage farming activities which would create better livelihood and income generation process. From the findings, it shows that majority of the cage farmers are involved in collective decision making in the farming community. The findings of the results are presented in Table 5

Table 5. Distribution of the respondents according to their decision making behaviour

(n=150)

Sl. No.	Decision level	Number	Percentage
1.	Low (below 12.86)	12	8.00
2.	Medium (12.87 – 17.13)	90	60.00
3.	High (above 17.13)	48	32.00
Total		150	100.00

Source: Primary data

Based on the results, it is known that about 60.00 per cent and 32.00 per cent of the cage farmers had medium and high level of decision making behavior, respectively. The results corroborated with the findings of Ali Hassan and Veerabhadran (2006), who concluded that most of the respondents had medium level of decision making behavior.

4. Perception about cage farming

Perception about the cage culture practices in fisheries was measured in terms of their reliability, cost, complexity in operation, usefulness, need and willingness. The findings are presented as follows.

Table 6. Perception of the respondents on reliability of cage farming

(n=150)

Sl.No.	Category	Number	Percentage
1.	Highly reliable	78	52.00
2.	Moderately reliable	34	22.67
3.	Not reliable	17	11.33
4	Not able to say	21	14.00
	Total	150	100

Source: Primary data

It could be seen from the Table 6 that a majority (52.00%) of the respondents perceived the cage culture to be highly reliable. From the findings, it could be concluded that cage culture were perceived to be reliable by a majority of the respondents.

Table 7. Perception of the respondents on cost of cages

(n=150)

Sl.No.	Category	Number	Percentage
1.	Very high	84	56.00
2.	Moderately high	36	24.00
3.	Affordable	18	12.00
4	Not able to say	12	8.00
	Total	150	100

Source: Primary data

It could be seen from Table 8 that more than three-fourths of the respondents (80.00%) perceived the cages to be costly of which 56.00 per cent of the respondents perceived the cost of cages as very high and 24.00 per cent of the respondents perceiving the cost as moderately high. Only one-sixth (12.00%) of the respondents perceived the cost to be affordable. From the findings, it could be concluded that a majority of the respondents perceived the cost of cages to be high.

Table 8. Perception of the usefulness of cage farming

(n=150)

Sl.No.	Category	Number	Percentage
1.	Highly useful	94	62.67

2.	Moderately useful	27	18.00
3.	Not useful	12	8.00
4	Not able to say	17	11.33
	Total	150	100.00

Source: Primary data

Most of the respondents in the study area (80.67%) perceived the cage farming to be useful in fishing, of which 62.67 per cent perceived it to be highly useful (Table 9). Only a meager proportion of the respondents (8.00%) perceived the cage farming to be not useful in fishing. From these findings, it could be concluded that most of the respondents perceived that the cage farming were useful for inland fisheries.

Table 9. Willingness of the respondents to do cage farming

(n=150)

Sl.No	Category	Number	Percentage
1.	Willing	89	59.33
3	Somewhat willing	25	16.67
2.	Not willing	21	14.00
3.	Not able to say	15	10.00
	Total	150	100.00

Source: Primary data

Most of the respondents (59.33 %) expressed their willingness to do cage farming (Table 10). However 14.00 per cent of the respondents were not willing. From the findings, it could be concluded that most of the respondents were willing to do cage farming .

Table 10. Distribution of the respondents according to positive perception about cage culture practices in reservoir

Sl.No	Category	Number	Percentage
1.	Low (<22.11)	43	28.67
2.	Medium (22.11-25.37)	87	58.00
3.	High (>25.37)	20	13.33
	Total	150	100.00

Source: Primary data

Data presented in Table 10, indicate that a majority of the respondents (58.00%) had medium level of positive perception about practice of cage culture followed by low (28.67%) and high levels (13.33%). From the findings, it could be concluded that majority of the respondents had medium level of positive perception about cage culture practices in reservoir.

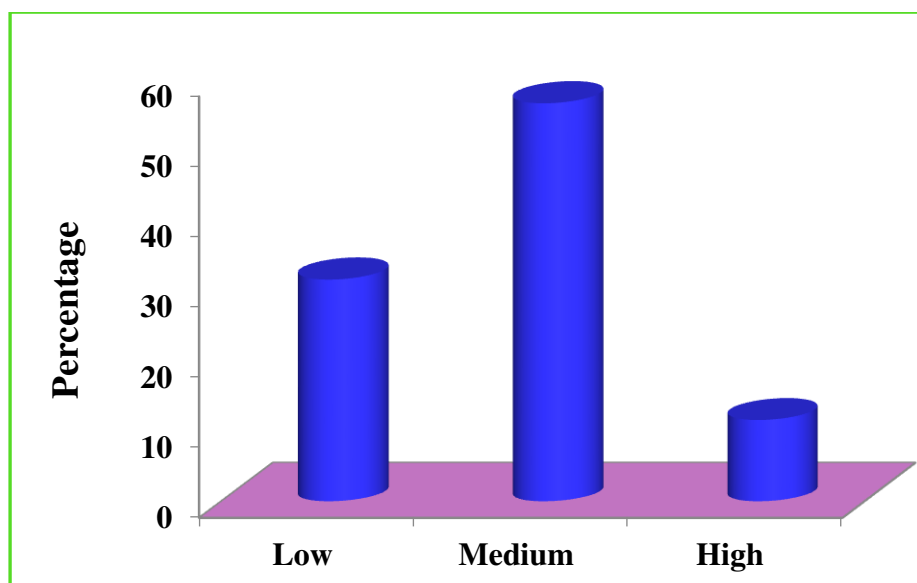


Fig.1. Perception about cage culture practices in reservoir

4. Knowledge level of the fisherfolk on cage farming

on different kinds of knowledge level as felt needed by the respondents were collected in this study and the findings are presented in Table 11

Table 11 . Knowledge level of the fisherfolk on cage farming

(n=150)

Sl. No.	Information needs of the respondents	Number Reported	Percentage
1.	Knowledge on Cage Fish Culture	130	86.67
2.	Market information on catch arrivals, price trend and demand of fish varieties	125	83.33
3.	Hygienic handling of fishes at cages	109	72.67
4.	Daily weather report, wind direction/speed, etc.,	89	59.33

5.	Vernacular language user's material for various topics	87	58.00
6.	Prevention of fouling organisms of cages	94	62.67
7.	Govt. schemes like welfare scheme, credit facilities for feed and seed subsidies, insurance policies, etc.	84	56.00
8.	Information on various inputs suppliers, repairs and maintenance of cages	78	52.00

Source: Primary data

As per the findings presented in the table, the respondents felt the need for information in 11 areas regarding fishing. Most of the respondents felt the knowledge on Cage Fish Culture (86.67%), market information on catch arrivals, price trend and demand of fish varieties (83.33%), hygienic handling of fishes at cages (72.67%), daily weather report wind direction and speed (59.33%). As these kinds of information could help the farmer to avoid unnecessary risks during farming, to get fair price for their catches and to ensure better catches to make the farming profitable, they could have felt the need for these information. In addition to these, a considerable proportion of the respondents felt the need for information on operation of cages in the vernacular language (58%), prevention of fouling organisms and various government schemes pertaining to fisherfolk (56.00%). This kind of information need could be attributed to their inclination to become familiar with the operation of cage farming, to maintain the cage properly and to avail the benefits of the various welfare schemes that will have economic implications on the part of the respondents. The other information needs were information on various inputs suppliers, repairs and maintenance of cages. These findings indicate the poor state of awareness on the part of the respondents in respect of the depleting fishery resources and their concern for conserving these resources which provide livelihood for these people.

5. Perceived scope for cage culture practices in reservoir

The findings on the scope for cage culture practices in reservoir as perceived by the respondents are presented in table 12.

Table 12. Perceived scope for cage culture practices in reservoir

Sl.No	Perceived scope	No. Reported	percentage
1	Reduction the feed cost	130	86.67
2	Weather conditions are more accurately predicted at reservoir	140	93.33
3	Increase the knowledge of fishermen on feed and chemical usage	120	80.00
4	Improving communication network among cage farming	126	84.00
5	Leading to more productive catches	107	71.33

Source: Primary data

As per the findings all are respondents perceived the utility of the cage culture on feed reduction and weather conditions of the reservoir which will help to avoid unnecessary ventures will improve the scope for their application in fishing. Besides these two benefits, facilities provided by the cage culture in improving communication network during fishing (84.00%), perceived as providing scope for improving the cage farming. The benefits of cages in reservoir in improving the livelihood of fishermen, reducing the operational expenses and ensuring good catches and getting better price for the catches could provide the scope for enhancing the yielding.

6. Constraints in the cage culture practices in reservoir

Responses on different kinds of constraints felt by the respondents were collected in this study and findings are presented in Table 13.

Table 13. Constraints to the cage culture practices in reservoir

Sl.No	constraints in the cage culture practices in reservoir	No. Reported	percentage
1	Finance constraints for the purchase of feed and seed	130	86.67
2	Language is the problem in understanding the technical training	128	85.33
3	Lack of knowledge on operation of cage farming	98	65.33
4	Non-availability of service centres and experts for the repairs works cage accessories	94	62.67

5	Lack of training support on properly utilization of cages	85	56.67
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Source: Primary data

As per the findings presented in the Table 13, six areas of constraints were felt by the respondents. Most of the respondents felt the constraints on economical support for the purchase of feed and seed (86.67%), language problem in understanding the technical training (85.33%), lack of knowledge on operation of cage farming (65.33%) and no service centre and experts for the repair work cage accessories (62.67%). As eliminating these kinds of constraints could help the farmer to overcome the problems during their farming operation, these have to be addressed properly to improve the cage farming practices in addition to these a considerable proportion of the respondents felt the constraints like lack of training support on properly utilization of cages (56.67%). This kind of constraints should be addressed by conducting hands-on training on operation of the cages and by providing need based information to be fisherfolk frequently through these applications.

7. Strategies for promoting cage culture practices in inland water bodies

Based on the findings of the study and the discussions held with the fisherfolk and extension functionaries, the following strategies are suggested to improve the cage culture practices in fisheries

7.1. Organising periodical training programmes

Organising training programmes periodically on cage culture will enhance the knowledge on their prospective application and skills to operate the cage culture and that will further improve the effective usage of these tools by fisherfolk. The training programmes need to be organised in the villages with consultation local fishermen association in which most of the fishermen were members. The training should be conducted with experts from Fisheries University, Fisheries Colleges, Krishi Vigyan Kendra, Fisheries Research Station, CIFA, CIFRI, NFDB and other relevant organisations. In the training programmes more thrust should be given for hands-on training on cage culture, such training will dispel the misconception of the cage culture in the complex to operate and will convince the fisherfolk on the advantages of using ICT tools in fisheries. These training programmes should be conducted during the period of fishing ban to enable the participation of maximum number of fisherfolk. Since the number of fisherfolk to be trained on cage farming is quite high, it is

necessary to get the master trainers of the state Dept. of fisheries, NGOs, local leaders trained by the experts of Cage culture so as that a large number of people can be trained within a short span of time. Further development on this should be informed to the fisherfolk periodically through local organisations, local leaders and NGOs to update the knowledge of the fisherfolk. Since a considerable proportion of the fisherfolk had poor levels of education, the instructional materials may be prepared in the form of operational manual with more visuals/ pictures, audio visual aids like CDs or expert systems.

Conclusion :

Innovativeness inferred that most (82.67%) of the respondents had medium level of innovativeness followed by high (11.33%) and low (6.00%) levels. From the findings, it could be concluded that the most of the respondents exhibited medium level of innovativeness. economic motivation reveal that a majority of the respondents (66.67%) had medium level of economic motivation followed by low (24.67%) and high (8.67%) levels. This implies that majority of fishermen had medium level of economic motivation. farmers had medium and high level of decision making behaviour. Perception about the cage culture practices in fisheries was measured in terms of their reliability, cost, complexity in operation, usefulness, need and willingness. 52.00% of the respondents perceived the cage culture to be highly reliable. From the findings, it could be concluded that cage culture were perceived to be reliable by a majority of the respondents. more than three-fourths of the respondents (80.00%) perceived the cages to be costly of which 56.00 per cent of the respondents perceived the cost of cages as very high and 24.00 per cent of the respondents perceiving the cost as moderately high. Only one-sixth (12.00%) of the respondents perceived the cost to be affordable. From the findings, it could be concluded that a majority of the respondents perceived the cost of cages to be high.

Most of the respondents in the study area (80.67%) perceived the cage farming to be useful in fishing, of which 62.67 per cent perceived it to be highly useful. Most of the respondents (59.33 %) expressed their willingness to do cag farming . However 14.00 per cent of the respondents were not willing. From the findings, it could be concluded that most of the respondents were willing to do cag farming . majority of the respondents (58.00%) had medium level of positive perception about practice of cage culture followed by low (28.67%) and high levels (13.33%). Most of the respondents felt the knowledge on Cage Fish Culture

(86.67%), market information on catch arrivals, price trend and demand of fish varieties (83.33%), hygienic handling of fishes at cages (72.67%), daily weather report wind direction and speed (59.33%).). This kind of information need could be attributed to their inclination to become familiar with the operation of cage farming, to maintain the cage properly and to avail the benefits of the various welfare schemes that will have economic implications on the part of the respondents. respondents perceived the utility of the cage culture on feed reduction and weather conditions of the reservoir which will help to avoid unnecessary ventures will improve the scope for their application in fishing. Besides these two benefits, facilities provided by the cage culture in improving communication network during fishing (84.00%), perceived as providing scope for improving the cage farming. Most of the respondents felt the constraints on economic support for the purchase of feed and seed (86.67%), language problem in understanding the technical training (85.33%), lack of knowledge on operation of cage farming (65.33%) and no service centre and experts for the repair work cage accessories (62.67%). As eliminating these kinds of constraints could help the farmer to overcome the problems during their farming operation, these have to be addressed properly to improve the cage farming practices in addition to these a considerable proportion of the respondents felt the constraints like lack of training support on properly utilization of cages (56.67%). This kind of constraints should be addressed by conducting hands-on training on operation of the cages and by providing need based information to be fisherfolk frequently through these applications.

Based on the findings of the study and the discussions held with the fisherfolk and extension functionaries, the following strategies are suggested to improve the cage culture practices in fisheries Organising training programmes periodically on cage culture will enhance the knowledge on their prospective application and skills to operate the cage culture and that will further improve the effective usage of these tools by fisherfolk. The training programmes need to be organised in the villages with consultation local fishermen association in which most of the fishermen were members. The training should be conducted with experts from Fisheries University, Fisheries Colleges, Krishi Vigyan Kendra, Fisheries Research Station, CIFA, CIFRI, NFDB and other relevant organisations.

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