

Original Research Article

An analysis of socio-economic, marketing and management constraints faced by beneficiaries after Integrated Fisheries Development Scheme in Khammam District of Telangana

ABSTRACT

Aims: This study typically aims at analyzing the multifaceted challenges faced by fishers who are the beneficiaries of Integrated Fisheries Development Scheme (IFDS) in Khammam District of Telangana.

Study design: Ex-post facto research design was used for the study and revealed the constraints faced by beneficiaries after IFDS.

Place and Duration of Study: The study was held in Khammam district of Telangana. In Khammam district top 5 mandals with highest number of beneficiaries were selected for the study. The study lasts from April-May 2024.

Methodology: A three-stage random sampling technique was selected for the study with sampling population of 120 beneficiaries. A well-structured pretested interview schedule was prepared that includes major constraints faced by respondents regarding socio-economic, marketing and management challenges they faced after IFDS. The constraints were selected from previous literature. Based on ranks given to the listed constraints by respondents, the ranks were analyzed and conclusive results were drawn by using Garette's ranking Technique

Results: The prime constraint with higher mean score value identified in these categories are in socio-economic constraints were problem in availing loan and insurance with mean score values 72.06 and 66.31 respectively. In marketing constraints, Lack of proper market infrastructure (73.31) and Lack of processing facilities (61.61) were observed as major constraints. In management constraints, prime constraints observed were high cost of material inputs (72) and high labor cost (59.91). Along with these major constraints some minor constraints were also identified in the study.

Conclusion: Through a comprehensive examination of these constraints, the study seeks to offer insights that can assist policymakers, practitioners, and stakeholders in developing strategies to address the challenges encountered by beneficiaries of IFDS in the Khammam district of Telangana. This could potentially have a significant impact on fish productivity and livelihood of fishers across the state.

Keywords: Fishers, Constraints, IFDS, Marketing, Socio-economic, Management, Garette's, Beneficiaries.

1. INTRODUCTION

India is the world's second-largest aquaculture nation, after China. The Blue revolution in India emphasized the importance of the fisheries and aquaculture industry. The

industry is expected to play an important role in the Indian economy in the near future. Indian fisheries have shifted from a reliance on coastal fisheries to inland fisheries, which now account for 70% of fish output, up from 36% in the 1980s. Inland fisheries have shifted from capture to culture-based, resulting in a sustainable blue economy. India's inland fish output has increased significantly, from 7.5 lakh tonnes in 1950-51 to the current level production of 131.95 lakh tonnes. Until 2000, marine fish output dominated India's overall fish production in India, but now inland fisheries account for 70% of overall fish output, owing to scientific practices.

The top inland fish producing states are Andhra Pradesh (45.06 lakh tonnes), West Bengal (18.56 lakh tonnes), Uttar Pradesh (9.15 lakh tonnes) and Odisha (8.39 lakh tonnes). Telangana ranks ninth in the country with the production of 4.38 lakh tonnes in 2022-23. (MoFAHD, 2023).

Fisheries is one of the fast-growing sectors generating income and employment in the state of Telangana. Aquaculture spreads over more than 1000 ha area in the Telangana. A rich human resource pool of 27.14 lakh population comprising of stakeholders who are organized into about 4000 Fishermen societies with about 3 lakh members spreads over in the entire state. The sector is contributing 0.6 percent to the GSDP and plays an important role in the overall socio-economic development of fisher families in Telangana by improving their living standards and providing sustainable livelihood. The inland fish production in the state is consistently raised from 2.7 lakh tonnes in 2017-18 to present production of 4.38 lakh tonnes in 2022-23. In the state, during 2023 the top five major fish producing districts were Nalgonda (29,488 lakh tonnes), Nirmal (22,137 lakh tonnes), Medak (21,963 lakh tonnes), Nizamabad (21,791 lakh tonnes) and Khammam (19,496 lakh tonnes) (DoF, Telangana, 2023). As Khammam was consistently performing over few years which reflects the scope for the study in the area

Telangana government has launched Integrated Fisheries Development Scheme (IFDS) on 5th September 2018 with a budget outlay of Rs. 1000 crore considering the consistent performance of fisheries in the state and to encourage the fisheries. The main objective of this programme is to develop fish production in the state and raise the living standards of fishers. Under this scheme, government spent the allocated amount for fisheries development and provided subsidy on the cost of material inputs to the beneficiaries. The state had established 14 numbers of freshwater fish seed hatcheries, constructed fish culture ponds covering 673 ha of area, established fish seed rearing units covering 85 ha and 24 pen culture units. It also established 25 re-circulatory aquaculture systems and 160 cage culture units under this scheme. Government had created required infrastructure and assets for the development of fishers by distributing vending units with 2 and 4 wheelers for marketing, fishing nets, boats, fish food kiosks, wholesale and retail markets, landing centers, ice plants, fish feed mills, fish processing units, ornamental fish units, laboratories, training centers etc., where 1,18,000 fishers got benefitted under this scheme. (NFDB, 2021).

Despite its outstanding performance in terms of state GSDP and social security, fishers confront a number of socioeconomic issues, including difficulties in obtaining loans and insurance, a lack of information about welfare schemes, a poor connection with the fisheries department etc., Marketing constraints include a lack of sufficient market infrastructure, processing facilities, Pest and disease outbreaks, high labor and input costs, low fish quality, and so on are among the constraints facing fisheries management.

Hence, the present study was attempted to find out major challenges faced by beneficiaries of IFDS related to socio-economic, marketing and management in Khammam district of Telangana.

2. MATERIAL AND METHODS

This study utilized the list of IFDS beneficiaries in Khammam district in its sampling frame. In IFDS nearly 97% of fishers in Khammam benefit from two sub-schemes: crafts and nets, and vending units with mopeds. A multistage random sampling procedure will be used to choose selected fishers. In first stage of sampling technique, out of the 33 districts of Telangana state, Khammam district of the Telangana state is purposively selected in the study, as it is consistently performing well in fish production over last five years. It ranked fifth position in fish production during 2022-23, which reflects the scope for expanding fish production in the district. In second stage of sampling, top five mandals based on number of beneficiaries has been selected from each sub scheme. In the third stage of sampling, top two villages from each mandal have been identified and six farmers from each village were selected randomly. Thus, 60 beneficiaries were selected from each sub scheme amounting to overall sample size of 120 fishers.

2.1 Henry's Garette ranking Technique

Garette's ranking technique was used to find out the constraints faced by beneficiaries. Beneficiaries were asked to assign the rank for all the socio-economic, marketing and management constraints faced by them and percent position of Garette value was calculated by formula:

$$\text{Percent position} = \frac{100(R_{ij}-0.5)}{N_j}$$

Where,

R_{ij} = Rank given for the i^{th} variable by j^{th} respondent,

N_j = Number of variables ranked by j^{th} respondent

After determining the percent position using the formula, the corresponding value was selected from Garrett's chart for each calculated percent position. Then, the ranks were replaced by Garrett's chart values for each rank. Finally, the average mean score for each statement was calculated. The statements with the highest mean score were assigned the highest rank,

3. RESULTS AND DISCUSSION

A pre-tested interview schedule was prepared for primary data collection and constraints faced by the respondents were recorded using personal interview method. There were three major categories of constraints observed among the beneficiaries of IFDS viz., Socio-economic, marketing and fisheries management constraints. Based on the responses of fishers who are the beneficiaries of IFDS the constraints were analyzed using Garet's ranking technique and discussed below.

3.1 Socio-economic constraints faced by beneficiaries of IFDS

In the study area, six major socio-economic constraints were taken for the study from previous studies. Then percent position for the six major constraints was calculated by

using the formula which was represented in the table 1. Based on percent position, Garrett value was seen from the Garrett's chart. After average mean score was calculated then ranking was given accordingly. Six major socio-economic constraints identified were Problem in availing the loan, Problems regarding availing insurance, Lack of awareness about welfare schemes, small size of land holding, Low literacy level and Lack of rapport fisheries department. Based on the responses given by respondents, the major constraint that observed was problem in availing loan with an average mean score of 72.06. It was found that there is no access to credit to fishers after IFDS which mainly acts as a source of investment for the fisheries. Also, this constraint was significantly found in the study (Panigrahy and Vohaniya, 2016). Second major challenge that was faced by fishers was regarding availing the insurance with a mean score of 66.31. As insurance is one of the main methods to manage risks there is no proper insurance facilities that are available to fishers after IFDS and beneficiaries reported that previously subsidized premium was also not credited. Third major constraint that concerned was Lack of awareness about welfare schemes with an average mean score of 53.61. There are no welfare schemes that are available to fishers after IFDS due to which they were lacking with development and saving from fisheries activities. Other constraints like small size of land holding, Low literacy level and Lack of rapport with fisheries management observed with a mean score of 43.91, 32.48 and 30.60 respectively, which was represented in the table 2. As fishers in the study area solely depends on the fisheries they have no other source of income like agriculture activities, least problem observed regarding socio-economic constraints was lack of rapport with fisheries department. The fisheries department in Khammam was conducting training programme regularly and there found good rapport with the fishers.

Table 1 Percent position of Socio-economic constraints.

Ranks	Percent position $\frac{100(R_{ij} - 0.5)}{N_j}$	Garette value
1	$\frac{100(1-0.5)}{6} = 8.33$	77
2	$\frac{100(2-0.5)}{6} = 25$	63
3	$\frac{100(3-0.5)}{6} = 41.66$	54
4	$\frac{100(4-0.5)}{6} = 58.33$	46
5	$\frac{100(5-0.5)}{6} = 75$	36
6	$\frac{100(6-0.5)}{6} = 91.66$	23

Table 2 Socio-economic constraints faced by beneficiaries of IFDS

SL No.	Socio-economic constraints	Mean Score	Rank
1	Problem in availing the loan	72.06	I
2	Problems regarding availing insurance	66.31	II
3	Lack of awareness about welfare schemes	53.61	III

4	Small size of land holding	43.91	IV
5	Low literacy level	32.48	V
6	Lack of rapport with fisheries department	30.60	VI

3.2 Marketing constraints faced by beneficiaries of IFDS

The major marketing constraints faced by fishers were Lack of proper market infrastructure, Lack of processing facilities, Lack of access to quality control mechanisms, Inadequate storage and preservation facilities, Involvement of middlemen in selling fish and Lack of proper transportation facilities identified. Then percent position was identified for each rank by using Garette's formula which was represented in table 3. After calculating percent position mean score value was calculated then following results were obtained. The most significant issue was the lack of proper market infrastructure, with a mean score of 73.31, indicating a critical need for development in this area. Following this, the lack of processing facilities with a mean score of 61.61 was identified, which highlights significant gap in the ability to value added and preserved fish products. Access to quality control mechanisms also presents a notable challenge, with a score of 55.03, which affects the ability to maintain product standards. Inadequate storage and preservation facilities, scoring 41.85, indicates the inefficient preservation of fish, leading to higher spoilage rates findings were in confirmative with the study (Rahman *et al.*, 2013). The involvement of middlemen in selling fish, with a score of 36.89, indicates the issues in the supply chain that could reduce profitability for primary producers. Lastly, the lack of proper transportation facilities, with a score of 30.29, underscores logistical challenges that impede efficient market access. Addressing these constraints in order of their severity can significantly improve the efficiency and profitability of the fish market in the study area

Table 3 Percent position of marketing constraints

Ranks	Percent position $\frac{100(R_{ij} - 0.5)}{N_j}$	Garette value
1	$\frac{100(1-0.5)}{6} = 8.33$	77
2	$\frac{100(2-0.5)}{6} = 25$	63
3	$\frac{100(3-0.5)}{6} = 41.66$	54
4	$\frac{100(4-0.5)}{6} = 58.33$	46
5	$\frac{100(5-0.5)}{6} = 75$	36
6	$\frac{100(6-0.5)}{6} = 91.66$	23

Table 4 Marketing constraints faced by beneficiaries of IFDS

SI No.	Marketing Constraints	Mean Score	Rank
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1	Lack of proper market infrastructure	73.31	I
2	Lack of processing facilities	61.61	II
3	Lack of access to quality control mechanisms	55.03	III
4	Inadequate storage and preservation facilities	41.85	IV
5	Involvement of middlemen in selling fish	36.89	V
6	Lack of proper transportation facilities	30.29	VI

3.3 Fisheries management constraints faced by beneficiaries of IFDS

Five major constraints were observed in management constraints. They were incidence of pest and diseases, high labour cost, poor quality of fish, lack of proper package facilities and high cost of material inputs. As mentioned earlier percent position was calculated by using Garette's formula which was observed in Table 5. Then by calculating the mean ranking were given accordingly. The primary constraint in fisheries management was the high cost of material inputs, which scores 72, indicating it is the most significant issue impacting the fisheries sector as inputs involves fish seed, nets and so on (Kanaga *et al.*, 2015). Closely following is the high labor cost, with a score of 59.91, which reflects the substantial expenses associated with workforce requirements. The incidence of pests and diseases, scoring 43.08, suggests a serious threat to fish health and productivity. Poor quality of fish, with a score of 42.75, could be attributed to low quality fish seed such that which was not seen at the time of IFDS. The findings were in the line with the study (Uttej *et al.*, 2023) that this constraint mainly suggests ongoing challenges in maintaining and to overcome the high standards for fish products. According to Raj *et al.*, 2022, lack of training in care and management of fingerlings at initial stages is one of the reasons for poor quality of fish. Finally, the lack of proper packaging facilities, scoring 32.25 highlights the deficiencies in packaging that affect the marketability and shelf-life of fish products. Addressing these constraints is essential for enhancing the efficiency, productivity, and overall sustainability of fisheries management.

Table 5 Percent position of Fisheries Management constraints.

Ranks	Percent position $\frac{100(R_{ij} - 0.5)}{N_j}$	Garette value
1	$\frac{100(1-0.5)}{5} = 10$	75
2	$\frac{100(2-0.5)}{5} = 30$	60
3	$\frac{100(3-0.5)}{5} = 50$	50
4	$\frac{100(4-0.5)}{5} = 70$	40
5	$\frac{100(5-0.5)}{5} = 90$	25

Table 6 Fisheries management constraints faced by beneficiaries of IFDS.

SI No.	Fisheries management constraints	Mean score	Rank
1	High cost of material inputs	72	I
2	High labour cost	59.91	II
3	Incidence of pest and diseases	43.08	III
4	Poor quality of fish	42.75	IV
5	Lack of proper packaging facilities	32.25	V

4. CONCLUSION

In conclusion, the analysis of various challenges in the fisheries sector reveals critical socio-economic, marketing, and management constraints. Socio-economic issues such as difficulties in availing loans and insurance; as well as lack of awareness about welfare schemes significantly impede the financial stability and growth potential of fisheries sector. Marketing constraints, such as inadequate market infrastructure and processing facilities, highlighted the need for substantial improvements in market access and product value addition. Additionally, fisheries management is severely affected by high input costs and labor expenses, coupled with issues like pest and disease incidence and poor fish quality. It requires concerted efforts from stakeholders to improve financial support, infrastructure and management practices pertaining to fisheries by addressing these highlighted multifaceted constraints, which would be crucial for fostering a more resilient and profitable fisheries sector.

CONSENT (WHEREEVER APPLICABLE)

"All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.'"

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