Indian Research Journal of Extension Education
ISSN: 0972-2181 (Print), 0976-1071 (Online)
NAAS Rating 5.22 (w.e.f January 2021)
journal homepage: https://www.seea.org.in

Analysis of Socio-economic Profile and Gender Equity among the Labourer Engaged in Dry Fish Value Chain in India

A.D. Upadhyay[1], D.K. Pandey[2], J.K. Chauhan[3] and P. Pal[4]

1.Asso. Prof. (Agril. Eco.), 3. Prof. (Ext. Edu.), 4. Asstt. Prof, College of Fisheries, Tripura, &
2. Asso. Prof. (Ext. Edu.), COHF, Pasighat, Arunachal Pradesh (CAU, Imphal)

Corresponding author e-mail : ad_up@rediffmail.com

Paper Received on June 11, 2021, Accepted on September 18, 2021 and Published Online on October 01, 2021

ABSTRACT

The women are accounted for about 50 per cent of the workforce in fisheries and aquaculture, when the secondary elements such as processing and trading are included (World Fish, 2014) but in developing countries they face substantive challenges to engaging in and benefiting equitably from these sectors. Keeping these facts in view this research paper aimed to analyse socioeconomic profile and gender equity of supporting actors of dry fish value chain in India. A sample of 156 labourers, involved in various value chain activities at different stages of dry fish value chain of the country were selected using stratified random sampling method for collection of primary data during 2015. The participation of women in dry fish value chain activities was 38 per cent, which was encouraging. The women are mainly involved in light activities such as cleaning, tying, drying, assembling, sorting, grading and packaging of dry fishes. The test statistics for two sample mean of income and expenditure of male and female labourers were found to be insignificant at 5 per cent level of significance. It clearly indicates that female were at par to the male labourers in monthly income and expenditure. However the variability was found more in income and expenditure of female as compared to the male labourers. Though the women were better placed in terms of employment and income generation in the dry fish value chain but their access to business ownership and decision making in dry fish value chain was found still poor.

Key Word **:** *Dry fish value chain; Supporting chain activities; Socio economic profile; Gender equity; Labourer.*

The Sustainable Development Goals (SDGs) will not be attained if women who accounted for 3.7 billion persons in 2017, or 49.6 percent of the world's population *UNDESA* (2017) are denied access to resources and opportunities for education, employment and decision making *(UNDP, 2018*). The women are accounted for about 50 per cent of the workforce in fisheries and aquaculture, when the secondary elements such as processing and trading are included. The fisheries and aquaculture sectors support the livelihoods of about 10-12 per cent population of the world and it also play significant role in food and nutrition security *FAO (2014)*. The women in developing countries face substantive challenges to engaging in and benefiting equitably from these sectors. At play are a combination of factors, including limited access to and control over assets and resources, constraining gender norms, time and labor burdens of unpaid work, and barriers to sustaining entrepreneurship. The result is women having fewer opportunities and receiving smaller returns from fisheries and aquaculture than men including lower income and being left in positions of poverty. Apart from

employment and women participation in fisheries and aquaculture, the gender equity in the sector can also play vital role in achieving the Sustainable Development Goals (SDGs) such as poverty reduction and food and nutrition security. Though the several studies have highlighted role of women in particular economic activity of fisheries and aquaculture *Singh et al. (2014*), *Jayaraman (2008)*, *Narayanakumar et al., (2005), Geethalakshmi et al. (2012*), *Khader (2013), Salim et al. (2013)* but the systematic study on socio economic profile of labourers engaged in dry fish value chain and gender equity in supporting value chain activities could not notice in literature survey. Hence, in this article an attempt has been made to analyse the socioeconomic conditions of labourers engaged in dry fish value chain of the country and gender equity in the dry fish value chain supporting activities.

METHODOLOGY

For the analysis of socioeconomic status of supporting value chain actors and gender equity in complex value chain of dry fish in the country, a sample of total 156 labours, engaged at different stages of dry fish value chain starting from landing centres of costal area to nearby processing centres to trading centres to wholesale markets and finally to retail markets of Tripura, Assam and Manipur, were selected using stratified random sampling technique. The study was conducted in 2015. The primary data on socioeconomic variables including age, education, family size, marital status, experience, material possession, sources of family income, monthly income, monthly expenditure, savings, women participation in value chain activities etc were collected using survey schedule adopting personal interview method of data collection. The descriptive statistics and inferential statistics tools including mean, standard deviation and test were applied for analysis of primary data.

RESULTS AND DISCUSSION

The dry fish value chain in India connects the producers distributed across east coast and west coast for marine fishes and in Northern India for inland fresh water fishes to the buyers and consumers distributed to the Chattishgarh, Jharkhand, Odisha, West Bengal, whole North Eastern Region of the country as well as in other country like Bangladesh. The dried fishes have multiple demands within the country such demand for direct consumption; demand for raw materials for making fermented products, raw materials for feed industries etc. while it also has fast growing export demand. The dry fish value chain activities are labour intensive and hence large number of labourers is engaged in it for their livelihood.

S*ocio economic profile of supporting value chain actors* : The majority of workers engaged dry fish value chain belongs to the age group between 35-60, 55.77 per cent followed in age groups 15-35, and 42.94 per cent (Table 1). About 87 percent of respondents were married and remaining 13 percent were unmarried. The proportion of married labourers engaged in dry fish vale chain, were lower in case of Assam and Manipur. This indicates that middle aged labourers were dominantly engaged along the dry fish value chain in the country. Further majority of the families (75 %) were having medium size families with 3-5 members and only 14.93 per cent were having large size of family above 5 members (Table 2). A significant percentage of labourers (32%) engaged at Veraval landing, processing and trading centres had large family size (> 5 members).

Table 1. Family size and age distribution of respondents

Place	Age wise distribution (Years)		
	<35	35-60	>60
Tripura	16(28)	39(70)	1(2)
Assam	10(53)	9(47)	
Manipur	8(73)	3(27)	
Mohona	8(50)	8(50)	0
Veraval	25(46)	28(52)	1(2)
Total	67(43)	87(56)	2(1)

Figures in parenthesis shows percentage of total

Table 2. Distribution of respondents based family size

Place	Family size			
	Married	1-2	3-5	>5
Tripura	54(96)	9(16)	45(80)	2(4)
Assam	13(68)	1(5)	17(90)	1(5)
Manipur	8(73)		11(100)	
Mohona	15(94)	2(12)	11(69)	3(19)
Veraval	44(81)	4(7)	33(61)	17(32)
Over all	58(87)	16(10)	117(75)	23(15)

Figures in parenthesis shows percentage of total

Caste : Analysis of caste structure of the workers engaged in dry fish value chain shows that out of total manpower dry fish value chain, 49 per cent were

belonged to the Schedule caste, followed by other backword caste (34.42%), schedule tribe(6.49%), general categories (5.19% and minority (4.19%) (Table 3). However, it is observed from the table that in wholesale and retails markets of Manipur and processing centres of Veraval, OBC constitute about 92 per cent and 63 per cent, respectively. The majority of labourers engaged in Tripura, Assam and Mohana were schedule caste. These results shows that the labourers engaged in dry fish values are dominated by Schedule Caste and Other Backward Caste categories. Hence, any up gradation strategies of dry fish value chain will have impact on livelihood the labourers.

Table 3. Percentage distribution of respondents based caste categories

Sampling Place	Caste Categories (%)				
	Gen	OBC	SC	ST	Min
Tripura	3.57	7.14	87.50	1.79	
Assam	15.79	15.79	68.42	-	
Manipur	-	90.91	-		9.09
Mohona	12.50	12.50	62.50		12.50
Veraval	1.85	62.96	9.26	18.52	7.41
Over all	5.19	34.42	49.35	6.49	4.55

Educational status : The literacy rate is being defined as the percentage of people having minimum exposure to some years of education at primary level. From the data analysis on education level among the labourers engaged in different supporting activities dry fish value chain, it was found that the literacy rate in the labourers of dry fish value chain was 74 per cent and out of which, 34.16 per cent possessed education level up to class V, 37 per cent up to class X and remaining 3 per cent were educated up to class XII. It was also noticed that illiteracy was more in female labourers as compared to male labourers. These results indicated that the education level of labourers engaged in dry fish value chain was lower and also female labourers have poor level of education.

Family income and expenditure pattern of labouers of dry fish value chain : The sources of income and monthly income of the families of the labourers involved in dry fish value chain were analysed ant it is presented the Table 4. On an average income generated by labourers employed in dry fish value chain activities was Rs. 8979.0 per month. Whereas, their family were also dependent on other sources such as MGNREGA, farming, service, small business etc. And they earn on an average Rs. 7066.74 per month. Hence the family income was estimated to be Rs. 16045.74/ month. However, large variation in income from one place to other places is evident from the table. The income of labourers in Tripura was Rs. 10933.5/month but the income of labourers in processing centre Veraval Gujarat was Rs. 26352.58/ month. It was mainly because of labourers engaged in processing centre Veraval earn more income from fish processing. It was found that labourers were more skilled to perform particular task and for the same there was fixed rate them either per hour basis or per fish basis. In case loading, unloading and fish produce handling in dry fish value chain, labourers charged per bag basis.

Table 4. Family monthly income of the labourers involved in dry fish value chain

Place	Dry fish value chain	other sources	Total income
Tripura	4819.0	6114.5	10933.5
Assam	6215.0	5484.5	11699.5
Manipur	9840.0	10035.0	19875
Mohona	8935.0	2275.0	11210
Veraval	17817.0	8535.58	26352.58
Over all	8979.0	7066.74	16045.74

Table 5. Family monthly spending of the labourers involved in dry fish value chain

State	Food	Education	Cloth	Misc	Total
Tripura	3991.10 (57)	642.7 (9)	438.4 (6)	1943.65 (28)	7015.85 (100)
Assam	4289.50 (76)	337.5 (6)	200.0 (4)	816.5 (14)	5643.5 (100)
Manipur	6800.0 (81)	590.06 (7)	150.0 (2)	830.0 (10)	8370.0 (100)
Mohona	1321.43 (35)	350.0 (9)	865.8 (23)	1215.8 (32)	3753.03 (100)
Veraval	5424.47 (40)	2116.07 (16)	1159.21 (9)	4799.08 (36)	13498.8 (100)
Over all	4676.53 (50)	1337.36 (14)	597.43 (6)	2712.62 (29)	9323.94 (100)

Figures in parenthesis shows percentage of total

The average spending of families the labourers involved in different activities of dry fish was estimated to be Rs 9323.94/month. Like in case of income, spending also varies from place to place and it was high in case of Veraval, Gujarat (Rs. 13498/month) to the lowest in case of labourer working at processing centre

Mohana (West Bengal) only Rs. 3753/ month (Table 5). The expenditure on food constituted about 50 per cent of total spending followed by Education (14%). In case of Manipur and Assam expenditure on food accounted for about 81 per cent and 76 per cent, respectively. The major household expenditures of fishers in India on food, clothing, fuel, healthcare, education, entertainment, personal and durables was reported by the *Salim et al. 2013.*

Gender Equity in dry fish value chain : Participation of women in economic activities is essential for the prosperity of households as well as for the economy of the country. Their economic power is considered as the most important factor affecting gender relations at the household level. India enjoys the demographic dividend advantage where more than 50 percent of its population is in the Gender equity, as defined by the International Labor Organization (ILO), refers to "fairness of treatment for women and men, according to their respective needs. Gender equality, on the other hand, is defined by the ILO as the 'enjoyment of equal rights, opportunities and treatment by men and women and by boys and girls in all spheres of life'. A value chain is a business model that describes the full range of activities needed to create a product or service and it comprises the steps that involve bringing a product from conception to distribution, and everything in between such as procuring raw materials, processing functions, and marketing activities. The dry fish value chain in India country is complex and long chain that start with procurement of wet fishes at landing centre and ends at consumption points mainly confined to remote areas of Chhattisgarh, Odisha, West Bengal and whole North Eastern Region *Upadhyay et al. (2017*). In between a series of activities including transportation of raw material to processing centre where sorting, grading, salting, drying, packaging and many more activities, then collection by the traders for storing and transportation to wholesale markets and for NEH Region Asia's biggest dry fish market is Jagiroad dry fish Market which serves as a distributing market from whole North Eastern Region and again Traders/ wholesalers of different states of NE region procure and sell it to the wholesalers/retails of the retails markets of rural and urban areas. The value chain of dry fish is very labour intensive and large numbers of labourers were engaged to perform various value chain activities. Though the most of the dry fish processing, handling, marketing activities are hard work in nature, however, the women participation dry fish value chain was encouraging, and about 38 per cent of total workforce engaged in supporting activities dry fish value chain in India were female. The women are mainly involved in light activities such as sorting, cleaning, tying, drying, assembling, packaging of the dry fish at processing centre and at trading centre they played role like cleaning and sorting,

grading and packaging of dry fishes. Apart from women participation in value chain, gender equity was analysed in terms of difference in monthly income and expenditure of male and female labourers engaged in dry fish value chain and the result is shown in table 6. The mean monthly income and expenditure of female labourers were Rs, 8264.70 and Rs. 7630.90, respectively. Whereas, mean monthly income and expenditure of male labourers were Rs, 7570.2 and Rs. 7198.4, respectively. The test statistics for two sample mean of income and expenditure of male and female labourers were found to be insignificant at 5 per cent level if significance. It clearly indicates that female were at par to the male labourers in monthly income and expenditure. However the variability was found more in income and expenditure of female as compared to the male labourers. It was found that there was no significant difference in mean monthly income and mean monthly expenditure of male and female labourers. their equity in It is to be mentioned that women are highly dominated in the trading of dry fish in Manipur. The male labourers were engaged at landing centre for sorting, loading unloading, transportation, at processing centre salting, drying, packaging loading, unloading, transportation etc. The tedious works like transportation of bulk quantities of raw fishes loading and unloading etc were done by male labours only. In a study of gender participation profile in various activities of dry fish production process by *Singh et al. 2014* reported that more than 50 per cent of the women in Puri and Ganjam districts were involved in fish collection/ procurement but in other districts, this work was mainly done by men. They also reported that the grading, salting and drying were mainly done by women whereas packaging and marketing was done by both men and women. The other studies reported that fisherwomen constitute about 29.63 per cent of the active fisher population of the country (*Jayaraman, 2008*), fisherwomen though marginalized in deployment process but still continue to dominate and played a significant role in fisheries sector, particularly in post harvest activities handling, processing and marketing being carried out by them (*Narayanakumar et al. 2005*). *Geethalakshmi et al. (2012)* observed that majority of the women in coastal areas of Kerala were engaged in fish processing activities like fish drying, preparation of value-added fishery products and fish marketing while *Khader (2013)* reported that about 50 per cent of fisherwomen of Kerala are engaged in value additions. Women dominate post-harvest fisheries. Activities include sorting, auctioning, marketing; drying; smoking; salting; fermenting; and other seafood industry oriented pre-processing and processing. Some of these spaces are however being taken over by men (not necessarily from the fishing communities) due to spatial changes in landing points and markets *Gopal et. al. (2012*). Hence the finding of our studies and studies undertaken by the researchers proved that the women are key supporting actors in dry fish value chain.

Table 6. Testing of equality of income and expenditure among male and female labourers

Particular	Male	Female
Monthly Income (Rs)	7570.2	8264.70
SE (Monthly income)	388.49	1468.63
't' value	*0.599^{NS}*	
Monthly expenditure(Rs	7198.4	7630.90
SE(Monthly expenditure)	322.50	626.17
't' value	*0.768^{NS}*	

5% level of significance, NS- non significant

CONCLUSION

The socioeconomic conditions of supporting actors of dry fish value chain in Country has been studied in terms of age distribution, family size, caste, literacy, income and expenditure profile. It was found that majority of labourers engaged in dry fish value chain were in middle age group (35-60 years) and they possessed medium size of family (3-5 members). Study also revealed that majority of labourers involved in dry fish value chain belongs to Other Backward caste followed by Schedule Caste category. Though the literacy rate was 74 per cent but out of it maximum was up to Class X which indicates poor education level among the labourers of the dry fish value chain. The employment in dry fish value chain was main sources of their family income; however their families were also dependent on other sources of income such as MGNREGA. The expenditure on food constituted about 50 per cent of total spending followed by Education (14%) and in case of Manipur and Assam, expenditure on food was accounted for about 81 per cent and 76 per cent, respectively. The similar finding was reported *by Salim et al. 2013*. Participation of women in economic activities is essential for the prosperity of households as well as for the economy of the country.

Their economic power is considered as the most important factor affecting gender relations at the household level. The test statistics for two sample means for monthly income and monthly expenditure of male and female labourers were found to be insignificant at 5 per cent level if significance which indicates female were at par to the male labourers as for as income and expenditure is concerned. The women are mainly involved in light activities such as sorting, cleaning, tying, drying, assembling, packaging of the dry fish at processing centre and at trading centre they played role like cleaning and sorting, grading and packaging of dry fishes. Though the women were better placed in terms of employment and income generation in the Dry Fish value chain but their access to business in dry fish value chain was found still poor. Except in Manipur where women also have business ownership for trading of dry fishes. It was also reported by *Meetei et al. 2015* that fish marketing in Manipur is generally undertaken by women and is a major domain of women in the retail trade sector. Hence, women need to be empowered to have better participation in business ownership dry fish value chain.

Acknowledgements : Authors are thankful to the Dean, College of Fisheries (CAU, Imphal), Lembucherra, Tripura, encouragement and support. Further some part of this study was adopted from the research work conducted under the under NABARD funded project on value chain analysis of dry fish hence their financial supports is duly acknowledged by the authors.

REFERENCES

Singh A.; P. K. Sahoo; Krishna Srinath; Anil Kumar, S. Tanuja, J. Charles Jeeva and Rajshree Nanda (2014). Gender roles and livelihood analysis of women in dry fish processing: A study in coastal Odisha. *Fishery Technology,* 51(2014): 267 – 273

FAO (2014). The state of world fisheries and aquaculture opportunities and challenges. *Food and Agriculture Organization of the United Nations, Rome*, 2014 (Report). Pp: 243

Geethalakshmi, V.; Jeeva, J. C.; Balasubramaniam S.; Parvathy R. and Nasser, M. (2012). Information and training needs of coastal fisherfolk of Ernakulam district in Kerala, *J. Global Communication,* 5 (1): 9-15

Gopal, N.; Ashok, A.; Jeyanthi, P.; Gopal, T. K. S. and Meenakumari, B. (Eds.), (2012). Gender in fisheries: A future roadmap. workshop report, Central Institute of Fisheries Technology, Cochin, November 2012 p:38

Jayaraman, R. (2008). Performance analysis of fisherwomen self help groups. *Ind. J. Vet. Animal Sci. Res*., 4 (2): 52-55

Khader, V. (2013). Socio-economic empowerment of fisherwomen in southern states of India. *Fish. Technol*., **50** : 258-264

Meetei, W.T.; Saha, B.; and Pal, P. (2015). Factors influencing women's empowerment through fisheries activities: a study in Manipur. *Indian Res. J. Ext. Edu.,* 15 (4) : 35-40

Narayanakumar, R.; Ravichand, Y. and Suryaprakasrao, V. (2005). Fisherwomen's knowledge, aptitude and practice (KAP) of alternate income-generating activities: a case study in Andhra Pradesh. *Fishing Chimes*, (Online Monthly Indian Fisheries Journal), (http://www.fishingchimes.com/fisherwomen.htm). (Accessed 15 April 2014)

Salim, S.; R. Sathiadhas; R. Narayanakumar; P.K. Katiha; M. Krishnan; R.S. Biradar; Nikita Gopal; Nagesh Barik and B. Ganesh Kumar (2013). Rural livelihood security: Assessment of fishers' social status in India. *Agril. Eco. Res. Review,* 26 (Conference Number): 21-30.

UNDESA (United Nations Department of Economic and Social Affairs) (2017). World population prospects: The 2017 Revision. *New York: United Nations.*

UNDP (United Nations Development Programme) (2018). Human development indices and indicators. 2018 Statistical Update. New York: UNDP.

Upadhyay A.D., Pandey D.K., Dhar B. (2017). Value chain analysis of dry fish in north-east region of India. In: Mani G., Joshi P., Ashok M. (eds) Financing Agriculture Value Chains in India. India Studies in Business and Economics. Springer, Singapore, pp: 143-162

• • • • •