

## Gender Mainstreaming and Women Empowerment – Reflections and Upshots from fishing industry of Kerala

Shyam.S.Salim<sup>1</sup>

1. Senior Scientist, Socio - Economic Evaluation and Technology Transfer Division, CMFRI, Cochin-682 018

**Correspondence to:** Senior Scientist, Socio - Economic Evaluation and Technology Transfer Division, CMFRI, Cochin. Mail: shyam.icar@gmail.com, Mobile No: 9746885361.

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### ABSTRACT

Mainstreaming aims at incorporating gender concerns as an integral element in the implementation, monitoring and evaluation of policies and programmes so that benefits are shared equally and inequality isn't perpetuated. (UNDP, 2008) opined that investing in women competencies and empowering them to exercise their choice is the surest way to sustain economic growth and development. In India, fisheries sector provides a livelihood for women as a source of supplementing fisher household income by their engagement in pre and post-harvest activities including marketing. The fisherwomen in Kerala assume significance due to their involvement in fish related activities leading to distribution, availability and value addition. The study focused the economic, social, political and legal empowerment of fisherwomen involved in processing and marketing across four occupational groups viz. fish retailer, fish vendor, dry fish makers, and value added fish producers and was based on primary data collected from fisherwomen households. The study analyzed empowerment levels using scoring indices and composite empowerment index for fisherwomen categories were estimated. The social and economic empowerment level was high with freedom in decision making and household expenditure. Handling, transporting and storage operations exhibited highest level of discriminations. SHG's and co-operatives were major networking institutions which augmented empowerment levels. Market intelligence and news were concerns of continuing discriminations. The results indicated that the fisherwomen in Kerala possessed healthier composite fisherwomen empowerment index. Nevertheless appropriate institutional arrangements ensuring equal opportunities in fish marketing and processing and priority for institutional credit access will mend gender discrimination of fisherwomen for future.

**Keywords:** Indigenous technical knowledge, capture fisheries, fishing ground, fish shoals, weather prediction, technological transformation.

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### 1. INTRODUCTION

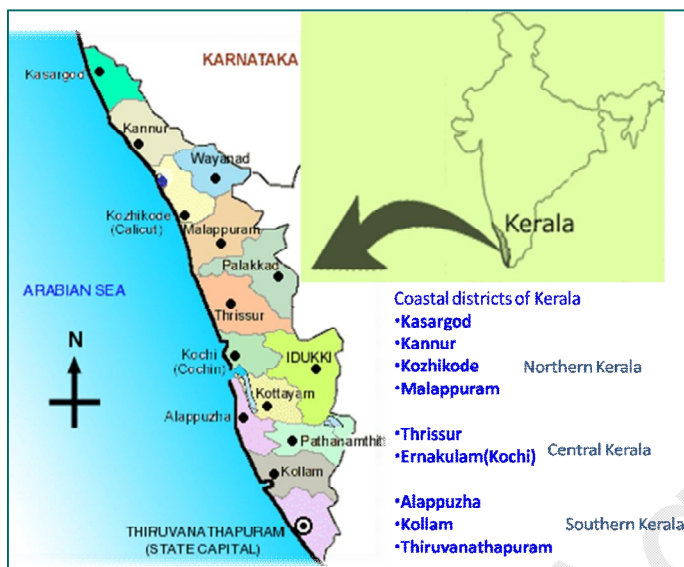
Fisheries is a prime and growing sector of the Kerala economy which has been registering consistent growth of 5-6 per cent during the past three decades (Shyam, 2012; SEAI 2013). Fishing industry of Kerala which comprises of fish catching, processing and marketing provides employment to over 3.5 lakh person which constitutes nearly five per cent of the workforce in the state (Figure 1). Though this coastal line is less than 10 per cent of the country's total coastal line, its water front contributes about 25 per cent of the country's fish catch. Among the maritime states in India, Kerala occupies the foremost position in marine fish production, accounting for about 20 per cent of the total landings. Fish production in the marine sector of Kerala over the last 10 years presents more or less a stagnant trend with a decadal average of 5.88 lakh tonnes (Shyam et al, 2012). Economically, the fish caught by around two lakhs active fishermen contribute to the tune of about 1.86 per cent of the State's net domestic product. The most important role of fisher women in both artisanal and industrial fisheries is at the processing and marketing stages. In some countries, women have become important entrepreneurs in fish processing; Infact, most fish processing is performed by women, either in their own cottage-level industries or as wage labourers in the large-scale processing industry. Women are actively involved in the processing of fish catch -

sun-drying, salting, smoking and preparing fish and fish-derived foods such as fish paste and cakes, either in cottage level industries, or as wage labourers in large scale processing industries. They are also normally the ones who subsequently sell the fish products (Krishna Srinath, 1987).

Women dominate the seafood processing sector the world over. The manual dexterity required in processing seafood which involves activities like sorting, grading, peeling, gutting, slicing etc., is the primary reason for this dominance. However, women have been confined to the lower rungs of the production process (FAO, 2009). Though skill is defined as the ability or talent to perform a task well or better than average, the work done by women technically comes under the 'unskilled' or 'semiskilled' category as their employment does not require a formal education or education only up to some basic level. Over the years even though the marine landings depleted the share of the primary stakeholders in the consumer share hasn't decreased due to the sustained effort of the fisherwomen due to her participation in the forward integration in the marketing function as vendors/ retailers (Aswathy et al, 2012). The fisherwomen in Kerala play important role in the fisheries sectors in terms of their involvement in fish related activities viz. fish vending; fish drying, prawn peeling, sorting, grading, fish packing, and net making. The average annual income of a fisherwoman in Kerala varied according to their occupations Rs 8232 in sorting, Rs 9720 in peeling,

**Table 1**  
Sample distribution of Fisherwomen

Location	Occupational group				Total
	Fish retailer	Fish vendor	Dry fish maker	Value added fish producer	
Northern Kerala	10	19	18	21	68
Central Kerala	10	10	10	10	40
Southern Kerala	30	21	22	19	92
Total	50	50	50	50	200



**Figure 1**  
Map of Kerala state and Sampling Distribution

Rs 18000 in value additions, Rs 23328 in curing and Rs.59760 in vending (CMFRI-2008). Mostly, they are involved in fish marketing followed by housekeeping, fish processing, etc. In the fish processing units women play an important role.

### 1.1. Problem focus

Persistent poverty and deteriorating economic conditions have forced many women from poor rural households to work outside their homes and ventured into varied economic activities while at the same time continuing to perform their traditional household duties (Swaminathan, 2011). Women play significant roles in all aspects of fisheries; both in the artisanal, small-scale sector and in the commercial sector, yet their roles remain unarticulated and unrecognized. The major constraints faced by women in fisheries include limited access and control over resources like water, land, boat, crafts and gear, knowledge, training, finance, tools, technologies, information technologies, time, little or no influence on the decision-making process especially in the public sphere, lack of proper infrastructure and support facilities for marketing and processing etc (Shyam et al. 2011). Fishing villages are deprived of basic amenities such as better educational and health care facilities, transportation and communication facilities, water supply and electricity etc. (Dehadrai, 2002). Problems like anaemia, malnutrition and vitamin deficiency is observed in fishing communities especially among fisherwomen and children. Furthermore poor awareness/knowledge in the areas of health, nutrition and child care heightened their problems. The overall objectives of the study are to document the empowerment status of women in fisheries across the different occupation in which they are involved. However the specific objectives are to analyse the role of fisherwomen in processing and marketing of fish and fishery products as a source of income generation and livelihood option in Kerala and to estimate the social, political and economic empowerment of fisherwomen involved in processing and marketing of fish and fishery products in Kerala. In this

background, an attempt was made to study the empowerment of women through processing and marketing of fish and fishery products in Kerala. The study was conducted in the coastal districts of Kerala viz. The specific objective of the study was to determine the level of gender discrimination in the access to resources and economic, ties; (ii) to analyze the economic, social, political and legal empowerment of fisherwomen of fish processor and marketers.

## 2. DATA AND METHODOLOGY

The study was based on the data collected from primary and secondary sources. The primary data was collected from selected respondents using comprehensive and pre-tested questionnaires. The primary data provided concise, clear, complete, and unbiased information about the respondent. The important variables considered for the study were gender, age, religion, caste, family structure, education level, occupation, income level, assets, expenditure level, frequency of fish consumption along with total and average monthly quantity of fish and fish substitutes purchased, problems in fish consumption, awareness about the value added fish products, and problems in consumption of value added products. The study is designed to conduct among the fisherwomen, especially among four occupational groups of Kerala viz. (1)fish retailer, (2)fish vendor, (3)dry fish makers, and (4)value added fish producers (Table 1). 50 samples from each occupational group were selected purposively with an equal distribution from all the major three regions of Kerala including Northern Kerala, Central Kerala, and Southern Kerala (Table 1).

### 2.1. Tools of Analysis

The data obtained from the respondents were systematically tabulated for the purpose of analysis. The study used the following methods of analysis to present the facts in a cogent manner, to draw meaningful conclusions and to generalize the level of empowerment of the respondent's fisherwomen.

#### 2.1.1. Average and Percentage Analysis

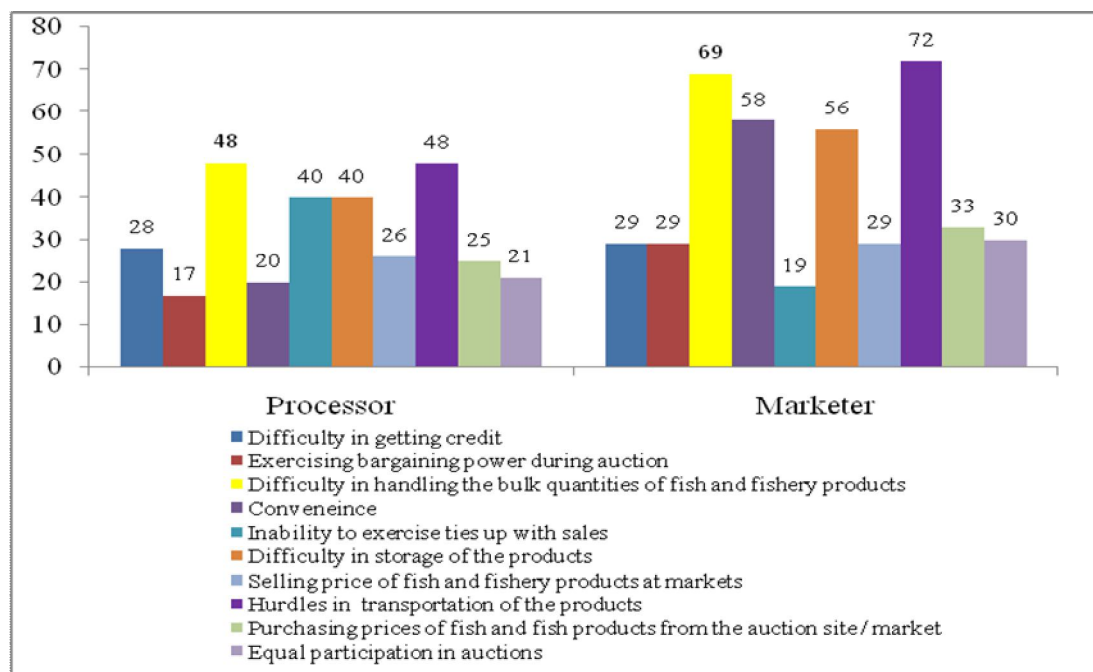
Average and percentage analysis were used to examine the different variables pertaining to the respondents of the respondents survey. Male-female ratio, adult-children ratio, literacy ratio, earner-dependent ratio etc were prepared for the analysis. Additionally respondents' species preferences, income and expenditure, savings and debt, networking etc were analysed using average and percentage analysis.

#### 2.1.2. Scoring method

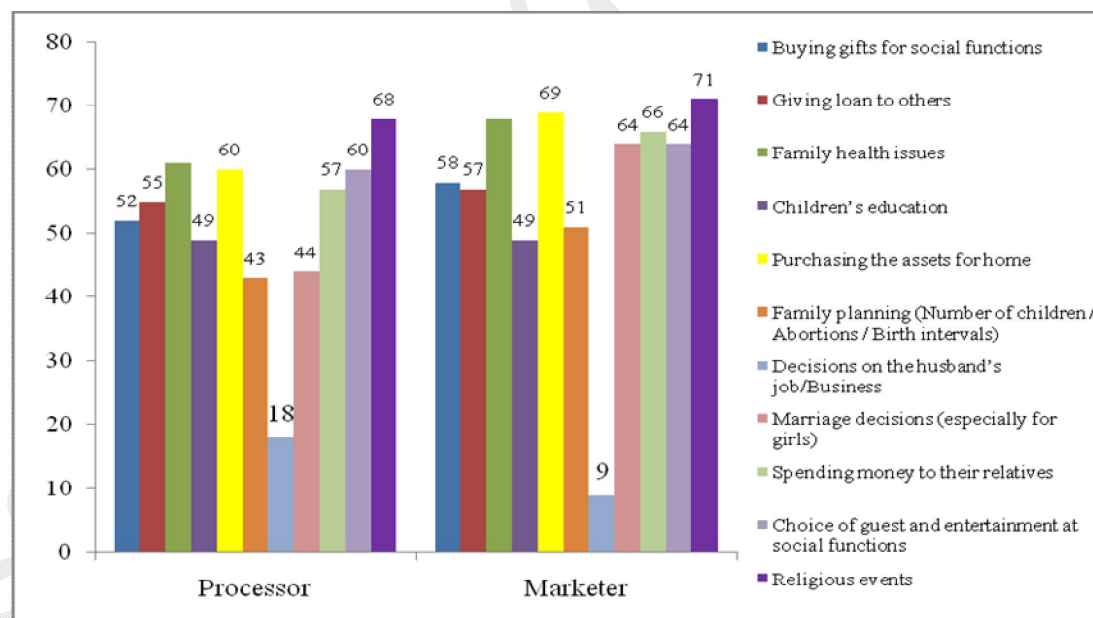
The different empowerment parameters like social, economic, legal and political were analyzed with the help of scoring indices. The scoring index is based on binary continuum of 0 and 1 indicating Yes or No or a three point continuum with (0, 1 and 2 indicating or 1,2 and 3 indicating low, medium and high.

#### 2.1.3. Measurement of women empowerment

The measurement of women empowerment was based on the four major indicators of fisherwomen, viz. (1) economic, (2) social, (3) political and (4) legal indicators. Information about their age, religion, caste, family type, educational status, occupation, income level, assets, expenditure on food and non-food items, time spent for household activities, discrimination in economic activities, level of participation in social activities, decision making ability, level of accessibility to resources, awareness about the health and nutritional



**Figure 2**  
Gender Discrimination in the economic activities of fisherwomen



**Figure 3**  
Decision Making Ability of Fisherwomen

status, some of the political and legal indicators, etc. were collected from the data sampled in the questionnaires for fisherwomen. The following tools were used to find out the empowerment of fisherwomen in the study area. Rank order correlation co-efficient was estimated to compare the gender discrimination in the economic activities, decision making ability, access to legal process and systems and access to political systems and citizens power among the four categories of fisherwomen such as dry fish makers, value added fish producers, fish vendors and retailers, the rank order correlation co-efficient was estimated by using the following formula (Bala et al. 2006):

$$\text{Rank order correlation co-efficient } (r_s) = 1 - 6 \sum \frac{d^2}{n^3} - n$$

Where, d = difference in ranks assigned to a particular gender discrimination aspect among four different categories of fisherwomen, and n = number of gender discrimination aspects under consideration or the highest rank.

Before estimating the rank order correlation coefficient, the ranks of each parameter / aspect considered in a particular empowerment indicator category were determined through calculation of Mean Percent Score (MPS) for each of them respectively by using the following formula (Rahman and Naoroze, 2007):

Mean Percent Score (MPS) =

$$\sum \frac{\text{Scores actually obtained from sample fisherwomen}}{\text{Maximum possible score to be obtained from sample fisherwomen}}$$

Where, i denote parameter / aspect considered in a particular empowerment indicator category.

Women empowerment index was calculated by capturing the responses of fisherwomen on the four broad categories of indicators such as those on economic, social, political and legal aspects. The economic empowerment indicators included responses of sample fisherwomen were sought on purchase and selling price of fish and fishery products, timing of auction and its convenience, equal participation in auctions, bargaining power during auction, discrimination in transportation, storage and handling of fish and fishery products and accessibility of getting credit in financial institutions, etc. to calculate the economic empowerment index (Mathew, 2003). Similarly, responses were sought from them on decision making ability, access to information resources and knowledge about health and nutritional status to calculate the social empowerment index (Sen and Batliwala, 2000). The empowerment index of fisherwomen for a particular indicator type, viz. economic, social, and political and legal, was calculated by adding the scores obtained in each aspect of respective indicator. The overall empowerment index of particular category of fisherwomen was estimated by arriving at the average of the indices obtained under all four empowerment indicator categories. The scoring index was based on both binary continuum of 0 and 1 indicating 'Yes' or 'No' and three point continuum of 0, 1 and 2 or 1, 2 and 3 indicating 'No', 'Little' and 'More' or 'Low', 'Medium' and 'High', respectively. The following formula was used to measure the empowerment index of the particular category of fisherwomen.

Fisherwomen Empowerment Index (FEI)<sub>i</sub> =

$$\sum \frac{\text{Scores actually obtained for each aspect of empowerment indicator}}{\text{Maximum possible score to be obtained for each aspect of empowerment indicator}} \times 100$$

Where, i denotes the four categories of empowerment indicators, viz. economic, social, political and legal.

Composite Fisherwomen Empowerment Index (FEI)

$$= \sum \frac{FEI_i}{4} \times 100$$

### 3. RESULTS AND DISCUSSION

#### 3.1. Gender Discrimination in Economic activities

Gender discrimination of respondent fisherwomen in economic activities was analyzed with the help of capturing the responses on various aspects and by calculating the rank order correlation co-efficient. The aspects on which responses were sought include purchase price at auction market, sale price at destination market, timing of auction, equality of participation in auction, bargaining power during auction, difficulty in transportation, difficulty in storage, difficulty in handling bulk quantities, difficulty to have tie-up with middlemen and difficulty in getting credit. The details on gender discrimination in the economic activities among four categories of fisherwomen in the study area are given in Figure 2. The results revealed that among the various aspects in their economic activities, the women fish processors in Kerala felt highly discriminated from their male counterparts on handling the bulk quantities, transportation and storage of fish and fishery products. This could be understood by the high Mean Per cent Score (MPS) of 48.00, 47.50 and 39.50 of these aspects respectively. On the other side, they did not feel much discrimination on the aspects of having tie-up with middlemen (14.50), bargaining

power during auction (16.50), its timing (20.00) and equality in participation (21.00). In the case of women fish marketers, the most discriminating aspects were found to be transportation of fish and fishery products (72.00), handling the bulk quantities (69.00) and timing of auction (57.50). Conversely, the least discriminating aspects for them were having tie-up with middlemen (18.50), bargaining power during auction (28.50) and credit access and sale price (both 29.00). Interestingly, the aspect of timing of auction was felt differently by the two groups of women fish processors and marketers. While the former felt it less discriminatory, the latter expressed it more. This is mainly because of the fact that marketers themselves participate in daily auctions for purchase of fresh fish for selling in the destination markets and to the consumers, whereas the processors usually source their raw materials through their agents (Figure 2).

Further, the rank order correlation coefficient ( $r_s$ ) between processors and marketers in Kerala was 0.70. It showed that the both the groups of fisherwomen felt more similar with respect to the discriminating aspects in Kerala. This could be understood by the similar or closer ranks assigned by them for most of the aspects of gender discrimination considered under the study. Over all, the results from the state indicated that the most common aspects in which the all four categories of fisherwomen were discriminated from their men-folk were found to be handling of bulk quantities of fish and fishery products, transportation, storage, access to credit from institutional agencies and difficulties during auction. Appropriate institutional arrangements by way of bringing out some guidelines for equal participation of fisherwomen women in auction, fixing of minimum quantities (quota) of fish for women, and priority for fisherwomen to institutional credit access by the government agencies may lessen the gender discrimination of fisherwomen, thereby empowering them ultimately.

#### 3.2. Decision making ability of fisherwomen

Decision making ability of the fisherwomen was analysed on various parameters related to their day to day life and it was linked directly with their level of empowerment. At the same time, it is influenced by some other external factors also. Various aspects, on which the decision making ability of the fisherwomen was measured, were namely family planning, marriage of their daughter, children's education, family health issues, buying gifts for social functions, religious events, choice of guest and entertainment at social functions, giving loan to others, spending money to their relatives, purchasing assets to home, decisions on husband's job and husband's habits. The details on level of freedom on decision making ability in household activities among four categories of fisherwomen in the study area is illustrated in Figure 3.

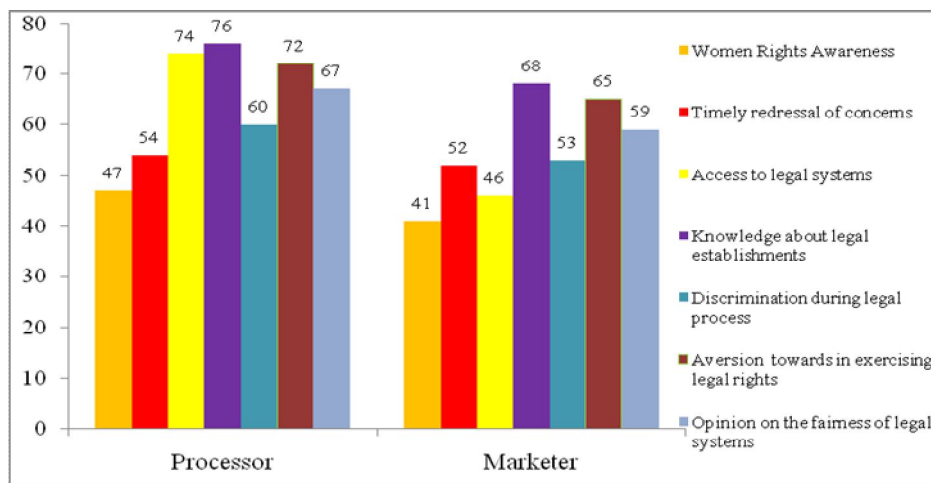
Among various aspects on which their decision making ability was studied, it was found that the women fish processors in Kerala had more freedom to decide on attending religious events, family health issues, choice of guest and entertainment at social functions and purchasing the assets for home. This could be understood by MPS of 68.00, 60.50, 60.00 and 60.00 secured by these aspects respectively. Conversely, they had less freedom to give suggestions on their husband's habits of smoking cigarette (3.00), playing cards (3.50) and drinking alcohol (4.50) and decisions on the husband's business (17.50). Similarly in the case of women fish marketers, it was found that they had more freedom to decide on attending religious events (71.00), purchasing the assets for home (69.00) and family health issues (68.00). On the other hand, they had less freedom to give suggestions on their husband's habits of smoking cigarette (6.00) playing cards (6.50), drinking alcohol (8.00) and decisions on his business (8.50), (Figure 3).

The rank order correlation coefficient ( $r_s$ ) between processors and marketers in Kerala was 0.92. It showed that the both the groups of fisherwomen felt more or less similar with respect to their level of freedom on the decision making ability in Kerala state, which could be understood by the

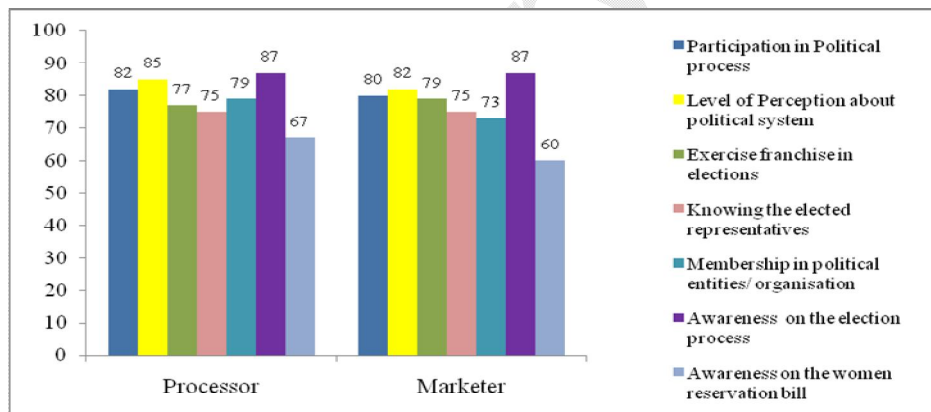
**Table 2**  
Empowerment of fisherwomen in Kerala (Per cent)

S.No	Fisherwomen category	Empowerment Indicators				Fisherwomen Empowerment Index	't' value
		Economic	Social	Political	Legal		
<b>I Processor</b>							
1	Dry fish maker	38.67	51.3	56.72	27	43.42	6.129* (-7.134)
2	Value added fish producer	33.12	55.28	63.42	35.3	46.78	6.012* (8.152)
<b>II Marketer</b>							
1	Vendor	47.61	51.9	49.85	26.3	43.92	6.732* (6.931)
2	Retailer	45.18	53.82	53.24	28.12	45.09	7.427* (6.023)
Overall Index		41.15	53.08	55.81	29.18	44.80	

Note: Figures in parentheses indicate estimated 'standard error' values \* = P < 0.01



**Figure 4**  
Access to legal process and systems



**Figure 5**  
Access to political systems and citizens power

similar or closer ranks assigned by them for most of the aspects in decision making ability of fisherwomen considered under the study. Over all, the results from the state indicated that the most common aspects, in which the all four categories of fisherwomen were found to be having more freedom, were on attending the religious events, caring about family health issues, purchasing the assets for home, choice of guest and entertainment at social functions and buying gifts for social functions, whereas, the fisherwomen had very less freedom to decide on their husband's habits and business. It shows that the fisherwomen do not have much freedom to suggest on their

husband's personal behaviour and business, while they are permitted to take decisions on some of the common family events, indicating their less empowerment in both categories of fisherwomen in both states irrespective of the contribution of income to their family.

### 3.3. Access to legal process

Access to legal process awareness on women rights, timely redressal of concerns ,access to legal systems ,knowledge about legal establishments, discrimination during legal process, aversion towards in exercising legal rights and opinion on the fairness of legal systems fairness by fisherwomen was analysed by seeking responses from them and assigning ranks accordingly. The details about the level of access to information on the various aspects among four categories of fisherwomen in the study area are given in Figure 4. Among the various information resources on which their level of access was sought, it was found that all the four categories of fisherwomen in Kerala state felt highly discriminated from their male counterparts on accessing the knowledge about legal establishments. This could be understood by the high MPS assigned to these information resources by the sample respondents, ranging from 75.50 to 95.90, (Figure 4).

This is understandable from the fact that historically the fish markets are traditionally dominated by males, who have more control and monitoring over the price and quantities of fish and fishery products handled in the fish markets in Kerala state. On the other hand, all the four groups of fisherwomen felt less discriminated on accessing the KVK / Village resource centres and market associations (especially in Kerala), knowledge about capacity building programmes, credit and financial institutions (especially in Tamil Nadu) and

Govt. programmes / subsidies. This could be related to the recent implementation of several women-centric welfare programmes through the respective state agencies such as Matsyafed and Kudumbasree in Kerala targeting the economically weaker sections of women, in general and fisherwomen, in particular.

But, at the same time, the results revealed that in general, fisherwomen were highly discriminated in all the chosen aspects of access to information resources. This could be seen from the high MPS they secured that ranges from 36.33 to 95.90, indicating that they have a very poor stake in decision making when compared to their men folk. This might be due to a very low level of literacy among



Fig 6: Bargaining at its best



Fig 7: Auction yard: waiting for the deal



Fig 8: Retailers : Waiting for the buyers



fig 9: Vendors in search of potential customers



Fig 10: Retailers waiting for the landing centre prices to follow



Fig 11 : Displaying fish for the competitive sale



Fig12: Economic Empowerment: disposal for the best selling price



Fig 13: Pricing the products based on dialogue



Fig14: Array of value added products



Fig 15: Quality improvement in value addition



Fig16: Standardization and grading operation



Fig 17: Drying operation in indigenous dryer

fisherwomen, lack of awareness about their status and rights, social belief and customs attached to women, etc. Public extension agencies, women welfare groups and civil societies should further intensify their efforts towards making this one of the most vulnerable sections among fisherwomen in the study area more empowered than what they are now. Further, the rank order correlation coefficient ( $r_s$ ) between processors and marketers in Kerala was 0.85. It showed that the both the groups of fisherwomen felt more similar with respect to discriminating aspects in level of access of legal systems and process sources in Kerala. This could be understood by the similar or closer ranks assigned by them for most of the aspects in level of access considered under the study.

### 3.4. Access to political systems and citizens power

The access to political systems and citizens power was studied by using the following parameters like participation in political process, level of perception about political system, Exercise franchise in elections, knowing the elected representatives Membership in political entities/ organisation and Awareness on the election process on the women reservation bill. The details on Access to political systems and citizens power among four categories of fisherwomen in the study area are given in Figure 5. The rank order correlation co-efficient ( $r_s$ ) was found to be 0.86. It showed that the both the groups of fisherwomen felt more similar with respect to access to political systems and citizens power in Kerala. This could be understood by the similar or closer ranks assigned by them for most of the aspects in level of access considered under the study. It could be seen from the Figure 5 that the both the processors and marketers in Kerala was empowered about the awareness on the election process (86.5) followed by the level of perception about the political system (84.5). The participation in the political system was also found to be high (81.5 and 79.5 respectively for processors and marketers). However it was found that knowing the elected representatives and the awareness on the women reservation bill was found to be lower across the processors and marketers.

### 3.6. Women involvement in fishing activities

The activities of fisherwomen in the value chain process of fishing include facilitating the different marketing functions. The list of activities is given in Figure 6-17.

### 3.7. Empowerment of fisherwomen

The empowerment of fisherwomen in Kerala was studied for fish processors and marketers by constructing the empowerment index. The estimated results are given in Table 2. It could be seen from Table 2 that the composite fisherwomen empowerment index was 44.80 per cent. Among all four categories of fisherwomen in Kerala, value added fish producers were found better empowered (46.78 per cent), followed by retailers (45.09 per cent), vendors (43.92 per cent) and dry fish makers (43.42 per cent). This could be understood from the fact that value added fish producers and retailers, to certain extent, were better

educated and economically well-off when compared to the other two categories of fisherwomen, who strata of their community were generally from the lower income (Figure 5 & 6).

But, interestingly, the results showed that they were empowered more politically, than socially, economically and legally in that order. The overall political empowerment index was 55.81 per cent, followed by social empowerment index (53.08 per cent) and economic empowerment index (41.15 per cent). On the other side, legal empowerment index was abysmally low (29.18 per cent), indicating their inability and lack of awareness in empowering themselves. It was found that the fisherwomen in Kerala were more politically empowered in Kerala. The composite fisherwomen empowerment index was high indicating that the fisherwomen are comparable to other sectors when it comes to empowerment.

## 4. CONCLUSIONS

The study has analysed the empowerment of two categories of fisherwomen in Kerala by capturing their responses on four broad categories of indicators such as those on economic, social, political and legal aspects. The study used the rank order correlation co-efficient to find out the level of discrimination from their men-folk in four aspects such as gender discrimination in the economic activities, decision making ability of fisherwomen, access of information from various sources and level of knowledge about health and nutritional aspects of fisherwomen. The results revealed that the gender discrimination in the economic activities compared with the men-folk were found to be handling of bulk quantities of fish and fishery products, transportation, storage, access to credit from institutional agencies and difficulties during auction. Appropriate institutional arrangements by way of bringing out some guidelines for equal participation of fisherwomen women in auction, fixing of minimum quantities (quota) of fish for women, and priority for fisherwomen to institutional credit access by the government agencies may lessen the gender discrimination of fisherwomen. The results have also shown that the most common aspects, in which the all four categories of fisherwomen were found to be having more freedom, were on attending the religious events, caring about family health issues, purchasing the assets for home, choice of guest and entertainment at social functions and buying gifts for social functions, whereas, the fisherwomen had very less freedom to decide on their husband's personal habits and business. It was found that all the four categories of fisherwomen in Kerala felt highly discriminated from their male counterparts on accessing the information about price and quantities of fish and fishery products and their market arrivals. On the other hand, all the four groups of fisherwomen felt less discriminated on accessing the KVK / Village resource centres and market associations, knowledge about capacity building programmes, credit and financial institutions and Govt. programmes / subsidies. Overall the results showed that in Kerala, the fisherwomen were more politically empowered in Kerala and also revealed that the composite fisherwomen empowerment index was high indicating better status of fisherwomen.

## SUMMARY OF RESEARCH

1. The study analyzed empowerment levels using scoring indices and composite empowerment index for fisherwomen categories were estimated. The social and economic empowerment level was high with freedom in decision making and household expenditure.
2. The results indicated that the fisherwomen in Kerala possessed healthier composite fisherwomen empowerment index. Nevertheless appropriate institutional arrangements ensuring equal opportunities in fish marketing and processing and priority for institutional credit access will mend gender discrimination of fisherwomen for future.

## FUTURE ISSUES

The results indicated that the fisherwomen in Kerala possessed healthier composite fisherwomen empowerment index. Nevertheless appropriate institutional arrangements ensuring equal opportunities in fish marketing and processing and priority for institutional credit access will mend gender discrimination of fisherwomen for future



## DISCLOSURE STATEMENT

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