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Gender Roles and Livelihood Analysis of Women in Dry Fish Processing: A Study in Coastal Odisha

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Abstract

This study was undertaken to document the socio-economic and livelihood profile, gender roles in fish curing, trade and marketing and perceived needs of women in dry fish processing in coastal Odisha. Majority of the respondents were middle-aged and had more than 10 years of experience in dry fish production and handling, with high social participation through self help groups (SHGs) and moderate decision making power in family and their trade. Majority of them (72.41%) were illiterates. Annually, they spend about 225-250 days in dry fish production process of low to medium valued fishes. Dry fish production was the primary occupation and secondary occupations include wage earnings in shrimp exporting units, ice production units, net mending, poultry, prawn peeling, farming, etc. Non-availability of good quality raw materials, lack of alternative drying methods during rainy season, lack of proper infrastructural facilities for drying, contamination with sand, microbes, attack of insects, birds and animals, non-availability of proper storage facilities, inadequate institutional credit facilities, exploitation by middlemen and inadequate transportation facilities were the major constraints perceived by the respondents. Most of them were not aware of the improved practices including packaging and quality assessment.

Keywords: Dry fish processing, gender, livelihood, perceived needs, fisherwomen

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Introduction

Since the early 1990s, there has been an increasing trend in the proportion of fisheries production used for direct human consumption rather than for other purposes. In the 1980s, about 68% of the fish produced was destined for human consumption, which increased to 73% in the 1990s and in 2010, it was more than 86%, equalling to 128.3 mt. In 2010, 20.2 mt was destined for non-food purposes, of which 75% (15 mt) was converted to fishmeal and fish oil; the remaining 5.1 mt was largely utilized as fish for ornamental purposes, for culture (fingerlings, fry, etc.), for bait, for pharmaceutical uses as well as raw material for direct feeding in aquaculture, livestock and for fur animals. In 2010, of the fish destined for direct human consumption, the most important product form was live, fresh or chilled fish, with a share of 46.9%, followed by frozen fish (29.3%), prepared or preserved fish (14%) and cured fish (9.8%) (FAO, 2012). It is interesting to note that the percentage of fish catch utilised for curing is more in the developed countries than in the developing countries. In the developed countries, out of the total production of 27.6 mt, 3.16 mt was used for curing which accounts for about 11.4%. In contrast, in the developing countries, out of the total production of 117 million mt, 9.3 mt was used for curing which accounts for about 7.9%. In India, the percentage of total fish catch used for curing is very high (12.5%) as compared to the global figures.

Women play critical roles in fisheries, particularly in the pre and post-harvest sectors. Even though the fishing activities are in men's domain, a small percentage of women do take part in passive fishing like collection of seaweeds, mussels, clams and other bivalves from the near-shore waters. Notably, of the 756 391 fisherfolk involved in fishing related activities, 365 463 are women

(approximately 48%) (Sharma, 2010). In fisheries, the post-harvest sector provides maximum employment to women. For every 5 kg of fish produced, employment was generated for 2 persons, one each in active fishing and post-harvest sector. About 5 lakh women are employed in pre and post-harvest operations in the marine fisheries sector alone which has a total work force of 12 1akh persons. The involvement of fisherwomen in the fisheries related activities provides additional income to their family. But the income they generate is not always the same as compared to the wages for men for the same work. In this background, this study had been taken up to document the (i) socio-economic and livelihood profile, (ii) gender roles in fish curing, trade and marketing and (iii) perceived constraints and needs of women involved in dry fish processing in coastal Odisha.

Materials and Methods

The study was carried out during the period 2009-12, in all the six coastal districts of Odisha, *viz.*, Balasore, Bhadrak, Kendrapara, Jagatsinghpur, Puri and Ganjam. Multi-method research approach involving both quantitative and qualitative techniques were used to collect primary and secondary data. The primary data were collected through focussed group discussions, stakeholder meetings and in-depth household surveys using semi-structured interview schedules. The perceived needs were assessed on a three-point continuum *viz.*, less important, important and most important, with the scoring pattern as followed in earlier studies (Jeeva et al., 2011; Mahalakshmi et al., 2009). The secondary data was collected from the records of state fisheries departments, block offices and village panchayats. A total of 6 districts, 16 blocks, 32 villages and 910 households were covered for primary data collection. Simple statistical tools such as frequencies, percentages, mean and class intervals were used to express the results.

Results and Discussion

Socio-economic and livelihood profile of women in dry fish processing

Majority of the fisherwomen involved in the dry fish production and trade were middle-aged. They had more than 10 years (10-25 years) of experience in dry fish production and handling, with high social participation through self help groups (SHGs) and moderate decision making power in family and their trade. Sheela (2008) reported that nearly 40% of the women in oyster cultivation in Kerala belonged to middle age group and only 22.86% of the women had more than 10 years of experience in fishing related activities. In the present study, it could be seen that more than half of them belonged to other backward classes (OBC) category (52.21%), about 28% belonged to general and the remaining 20% belonged to scheduled caste (SC) category. The district-wise distribution based on caste status is given in Fig. 1.

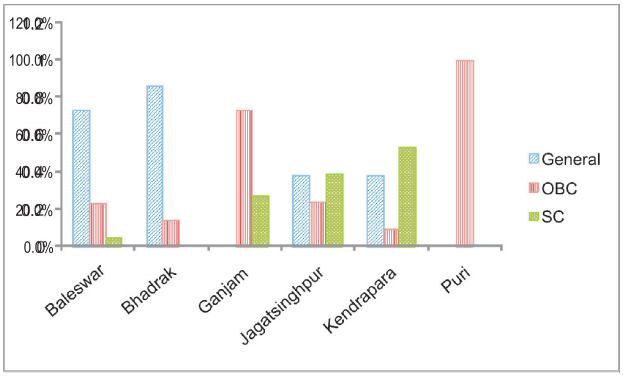

Fig. 1. District-wise distribution of women based on caste

All the women are involved in dry fish production in Puri district were from OBC category. In Bhadrak and Baleswar districts, the majority were from general category. In Kendrapara district, more than half of the women involved in dry fish production were from SC category. Shanthi et al. (2010) found that 90% of the women involved in crab culture in the coastal villages of Tiruvallur and Kancheepuram districts of Tamil Nadu belonged to Hindu religion. Fifty percent belonged to the most backward classes, 47% belonged to scheduled caste and 3% belonged to scheduled tribes.

The overall educational status is given in Fig. 2, from which it could be observed that majority of them (72.41%) were illiterates. It was followed by primary (15.45%) and higher secondary (6.84%) level of education. The district-wise analysis of educational status revealed that more than 90% of the respondents from Puri and Ganjam districts were illiterates. Comparatively, the educational status of women in Bhadrak was better as 60% had primary school level of education. The socio-economic profile of the fish processing women from Chellanam fishing village in Kerala revealed that the mean age was 38 years with all the women being literate and

on an average had high school education (Geethalakshmi et al., 2012). Sheela (2008) reported that more than 30% of women in oyster cultivation in Kerala were having primary and middle level of education and only 1.4% were illiterate.

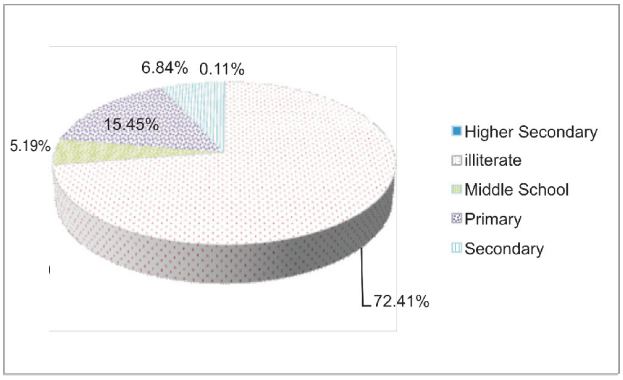

Fig. 2. Overall educational level of women involved in dry fish production

The annual income of majority (82 to 100%) of the fisherwomen was more than Rs. 20 000, except in Kendrapara, where, the distribution was among more than Rs. 20 000 (42%), Rs. 10 000 to 20 000 (37%) and Rs. 5 000 to 10 000 (21%). Earlier studies observed that 40% had medium level of income between Rs. 5 100 to Rs.10 000 per annum (Sheela, 2008). It has also been observed that 39.76% of the fisherwomen in the southern states were earning an income of less than Rs 24 000 per annum. While 26.44% of the respondents earned an annual income between Rs 24 000 and Rs 36 000 (Khader, 2013). Another study reported that 42% of the women had a monthly income between Rs. 2 000 and Rs. 3 000, 39% had monthly income between Rs.1 000 and Rs. 2 000, 10% of the respondents had income between Rs. 3 000 and Rs. 4 000 per month and 9% had monthly income above Rs. 4 000 (Shanthi et al., 2010).

Regarding the land holding pattern, it was observed that nearly three-fourth (72.24%) of them had their own land. Majority (61.04%) of them were having *kutcha* houses and one-third (32.56%) had *semi-pucca* houses. Only 6.40% of them were in possession of *pucca* houses. Based on a study in Tamilnadu, Shanthi et al. (2010) found that majority (97%) of the beneficiaries resided in terraced houses, constructed under the *Tsunami* rehabilitation programme and the remaining 3% resided in thatched houses.

Gender roles in fish curing, trade and marketing

Majority of the fisherwomen spent 225-250 days in dry fish production process, based on the seasonal availability of fishes. Mainly low to medium valued fishes were used for fish drying, targeting the consumers in the local areas and nearby urban peripheries. Anchovies, sciaenids, mackerel, catfish, ribbonfish, hilsa and seabass were the major species used for dry fish production in Odisha. Except addition of salt, no preservatives or additives were added to improve the quality of the dry fish. Adopting hygienic and standard procedures were not in place for dry fish production.

The primary occupation of fisherwomen in this study area was only dry fish production (100%) except in Kendrapara district where they were also involved in agriculture (45%). Fisherwomen constitute about 29.63% of the active fisher population of the country (Jayaraman, 2008). Traditionally, fisherwomen played a significant role in fisheries sector, particularly in post harvest activities with most of the post harvest handling, processing and marketing being carried out by them. Though they have been marginalized, as a part of development of the sector, they still continue to dominate various sectors like processing and marketing (Narayanakumar et al., 2005). The district-wise distribution of women based on their secondary occupations is given in Fig. 3. The secondary occupations of women involved in dry fish production was wage earning in shrimp exporter units, ice plants, net mending, poultry, prawn peeling, farming etc. Overall, 35.32% of the fisherwomen were also working as labourers.

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% of fisherwomen of Kerala are engaged in value additions. On an average, they were engaged for 197 days in fish processing activities per year while Nikita et al. (2010) reported 130 working days among the fisherwomen self help groups. The employment days of the women in oyster cultivation in Kerala have been reported as 180 (Sheela, 2008). Altogether, 28% of women were engaged in small-scale fish trading. Fish curers, dryers and net makers constitute 21% of the total women work force. Across the states, in Karnataka, 64.19% were

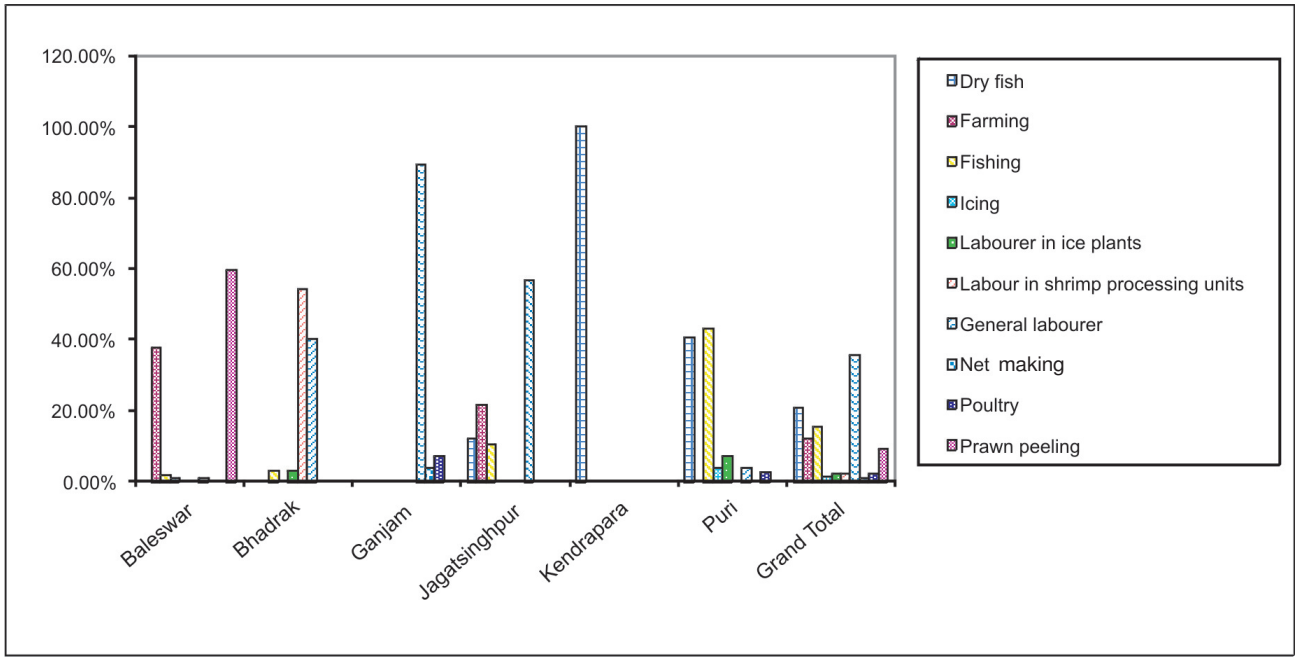

Fig. 3. Secondary occupation of women involved in dry fish production

involved in sun-drying while in Tamilnadu, the proportion of fish vendors is maximum (75.15%). Based on a study on crab fattening in Tamilnadu, Shanthi et al. (2010) reported that nearly 28% of the respondents were engaged in fish marketing as their primary occupation.

The gender participation profile in various activities of dry fish production process is given in Fig. 4. More than 50% 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. Grading, salting and drying were mainly done by women in all the districts. Packaging and marketing was done by both men and women. The participation profile revealed that majority of the fisherwomen were dependent on men for raw material procurement and marketing related activities. Very few fisherwomen independently managed the whole production process as well as marketing. Except in fishing and to a great extent in marketing, the most other activities in dry fish production process such as sorting, cleaning, salting/curing, drying, packing and storage were done by women only. Though the decision making pattern on dry fish trade was of a joint effort, women had moderate power than men in influencing the decisions. Narayanakumar et al. (2005) also observed that the role of women in decision-making is unfortunately limited.

With regards to market access, 82.50% of women had access to market both for procurement of fish from the market and sea coast and vending. Regarding the access to credit facilities, 27.50% of male and female had access to institutional credit and 37.5% of male and female had access to non institutional credit. The common sources of non-institutional credit were wholesale traders and moneylenders. Since a long period of time, the fisherwomen had limited access to institutional credit sources and they were exploited by non-institutional sources of credit. The introduction of SHG movement paved the way for their access to institutional credit sources. This micro credit programme considerably increased the marketing margin in the dry fish trade. Formation of self help groups has greatly helped rural women to understand their rights, gain access to information, attain economic independence, give them freedom of expression, help confidence building, improve access to credit and in general, build their personality and respect in the society. The empowerment of women through SHGs leads to benefit not only the individual women and women groups, but also the family and community as a whole through collective

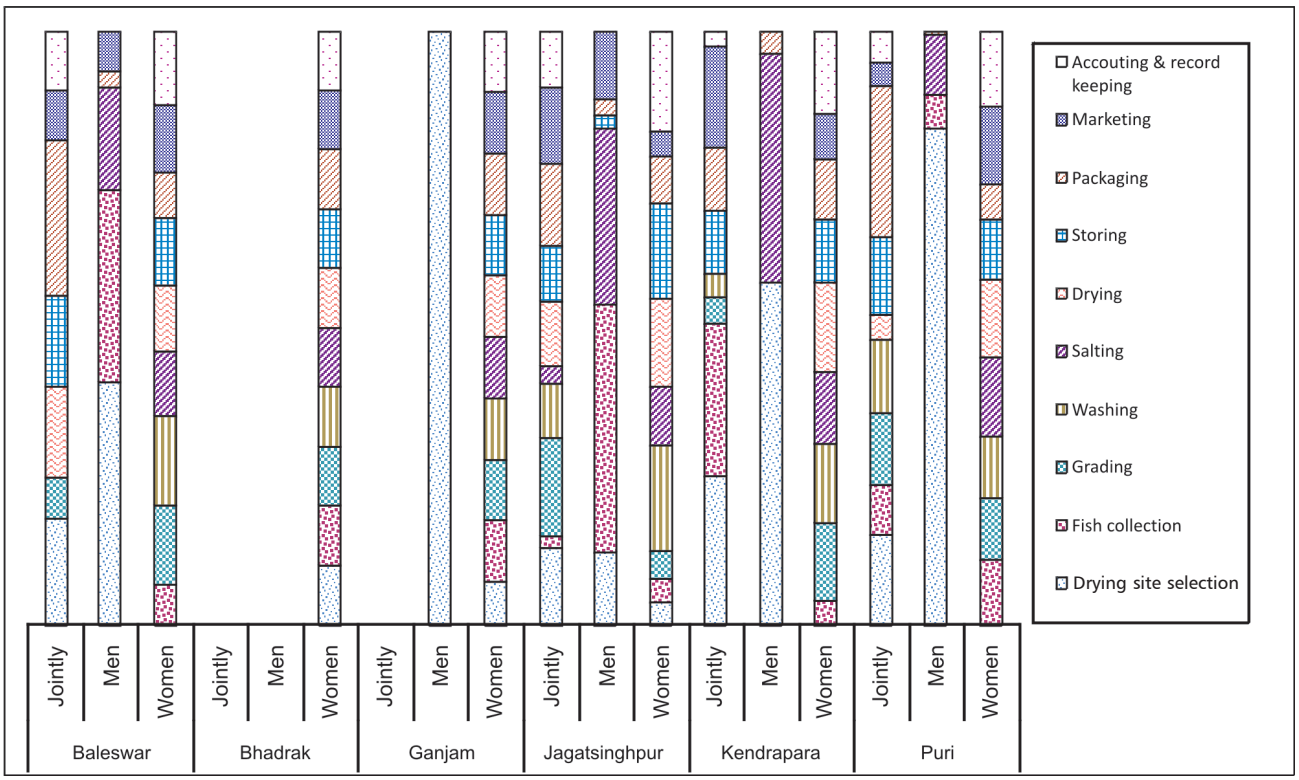

Fig. 4. Gender roles in dry fish production process

action and solidarity (Murugan & Dharmalingam, 2000). Microenterprise mode of working for SHGs ensures labour saving by using manpower from groups. This facilitates an additional income for participating group members by deploying their leisure time (Femeena et al., 2013).

Perceived constraints and needs of women in dry fish processing

Non-availability of good quality raw materials, lack of alternative drying methods during rainy season, lack of proper infrastructural facilities for drying, lack of open and clean space, contamination with sand, microbes, attack of insects, birds and animals, non-availability of proper storage facilities, inadequate credit facilities, exploitation by middle-men and transportation during marketing were the major constraints in dry fish trade as perceived by fisherfolk. The coastal fisherfolk had poor access to transportation facilities, as they were not permitted to transport the products in public conveyances to the markets due to the foul smell of dry fish. In few areas, fisherwomen collectively arrange transportation facilities such as trucks or mini vans to reach the distant markets. However, the portion of dry fish products sold in distant markets are minimal. There was no organized marketing and the channels at most of the places were not well-defined and there were also price fluctuations for the same variety of dry fishes at different places. Lack of scientific waste disposal facilities, raised drying platforms and proper water supply were also observed as general constraints in the dry fish production process in the coastal villages.

Nikita et al. (2009) reported that approximately 10 lakh people are engaged in seafood processing industry in India and their livelihood is under threat because of the scarcity of raw materials. Krishna (2004) reported that micro enterprises often fail due to very small investments, inadequate training, lack of quality concern, irregular production and supply to the market and lack of managerial skills. As a result, either they close the business after a while or become subjects of exploitation by middlemen. The methods *viz.*, organizing, training and skill development, finance and marketing can help in making the enterprises successful. Nikita et al.

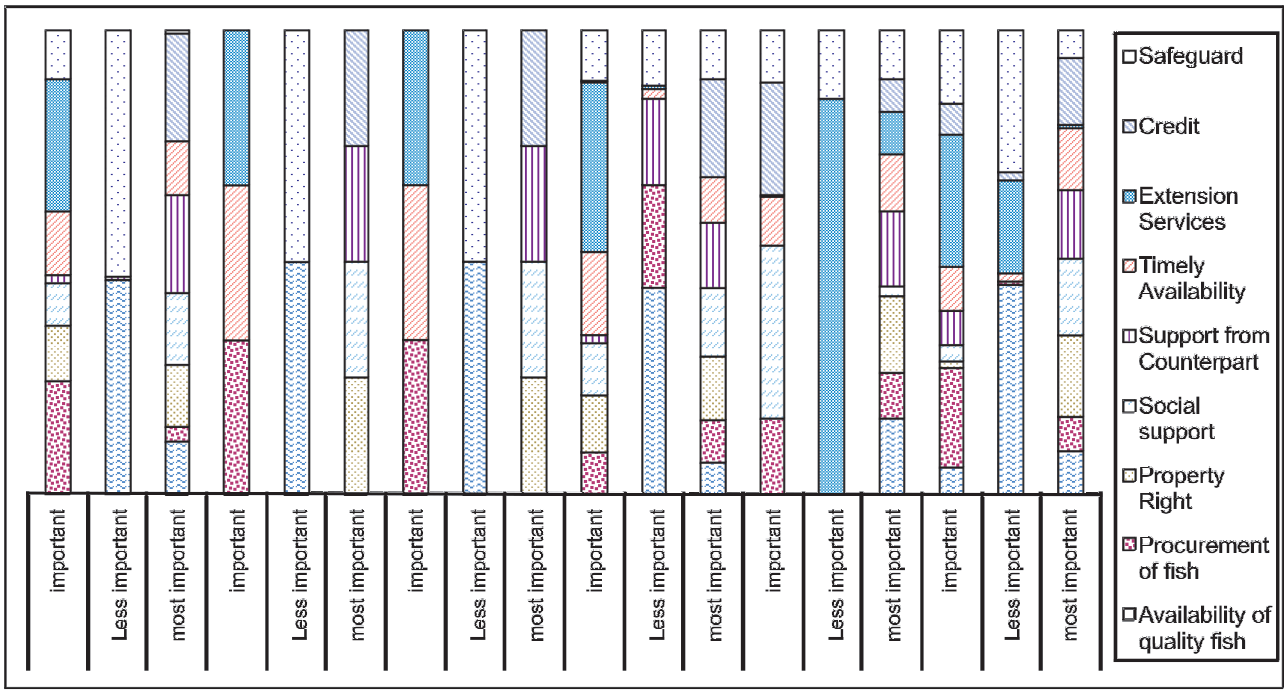

Fig. 5. Perceived needs of women in dry fish production

(2010) identified the need for the exposure to new and innovative technologies which can cater to the competition in current marketing scenario. Besides marketing per se, 66% of the women involved in fish drying expressed financial constraints as a major drawback. The difficulty in transportation was another major factor limiting their market access. Lack of proper storage facility for dried products is another constraint.

Improvement in capacity building, strengthening infrastructural facilities, organized marketing and institutional credit facilities are needed for improving livelihood of fisher families involved dry fish production. Only a few fisherwomen had exposure to trainings and demonstrations from government institutions and NGOs for technical aspects. The training programmes were mainly on preparation of value added fishery products. They did not attend any training for improving the dry fish production process, packaging, storage and quality enhancement of the products. Most of the fisherwomen were not aware about the improved practices in site management, packaging, quality assessment, etc. Majority of the fisherwomen preferred to attend training on value addition and improved drying methods for production of high value dry fish. The perceived needs on the three-point continuum *viz.*, less important, important and most important, are given in Fig. 5. Fisherwomen expressed that social support is the most important need, followed by support from their counterpart and financial and technical support from government and non-government institutions.

Study regarding training needs for different subjects, found that training need index on quality related topics was lesser, which revealed their lack of quality consciousness (Geethalakshmi et al., 2012). However, in a similar study conducted in Tamilnadu, Mahalakshmi et al. (2009) reported that the information and assistance for preparation of high quality and hygienic dry fish had high ranking as a need. It has also been reported that better packaging, promotion and market information are needed for dry fish and preparation of other value added fish products. Market information, seasonal price differentials, quality standards, cost of transport, details of importers etc., were expressed as information needs of fisherfolk involved in dry fish and fish/prawn pickles preparation.

Inspite of being a very old and important sector, level of technology use in this sector is very less compared to agriculture and agro-food sectors. It has been reported that the work stress and health

hazards of the fish processing works are considerably high due to the productivity demand and the low levels of technology used (Nikita et al., 2007; 2009). The traditional method of fish curing/drying produces cured fish in an unhygienic way thereby reducing quality and resulting in short shelf-life. Therefore, the fisher communities involved in fish curing should be trained on hygienic methods of fish curing, particularly they should be made aware about the importance of personal hygiene. Public institutions and NGOs must rise to the need and impart skills and provide resources to the fisherwomen. They can be encouraged to work in small groups or activity clusters so that they can share the risks and make the enterprises economically viable. The fisherwomen should be equipped to adopt the latest and economically viable technologies in their selected enterprises for better and continued returns.

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