Participation of Women in Production, Processing and Marketing of Freshwater Prawn (Galda) and Dried Fish in Two Coastal Districts of Bangladesh: Approaches Toward Sustainable Livelihood

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**Executive Summary**

Women's contribution to small scale aquaculture is often remain unrecognized and the real benefits from their involvement are not objectively assessed. The present study focused on the women's participation in fish production and marketing through assessment by reviewing DANIDA assisted projects in greater Noakhali Districts in Bangladesh.

The findings reveal that in most projects women's role is significant. Women have more knowledge in terms of management of production for example, scheduling, harvesting, feeding frequency, removal of unused feeds, etc. Women also have been found directly involved in preparation of cage and maintenance, identification of male and female prawn, indicators of good quality seed, and time of stocking. Women in some programmes are also found to be directly involved in selling fish, mostly at the farm-gate, local bazar and to the middlemen.

All the studied programmes show that woman had significant involvement. The most important positive aspect of change is that now women participants' family income has increased which is mostly used for food, health and education. Women would like to continue working in the fish production after the project support is withdrawn. They reported that there is not much scope for savings, which could have been used as investment to continue their involvement in fish production after the expiry of tenure of the project. Women expressed that they would like to sustain through utilization of NGO credit, loan from local moneylenders and petty personal savings. The existing fisheries projects fail to take into account; when projects are withdrawn how the women participants are going to continue. Women's participation in project according to the findings ensure certain extent of social and economic empowerment in the rural societies.

Strength of the GNAEP's different interventions are as follows:

- Women as equal partners with the male participants.
- Women are given priority in the selection fish species.
- Women and men both mobilized to become member of CBO.
- Women are found to participate in fish selling at the pond site.
- Women are found to market their own products.

Limitations of the GNAEP's different interventions are as follows:

- Many lack highly technical skills and basic understanding on ecological and biological requirements of the quasi-intensive commercial system.
- Most of the women demand opportunities for participation in local market to sell their own products.
- Most of the women have no access to capital.
- Women lack market information.
- Women need more training in fisheries management.
Mainly due to diversified use of dry fish and dry fish products, there is a gap between supply and demand of dry fish and dry fish products in Bangladesh. Narrowing the gap not only requires increasing production but also improvements in the post-harvest activities including all aspects of marketing and distribution of commodity chain. The study reveals that the sample women workers are engaged with eleven different types of activities in drying fish. Based on the rank average of these eleven activities, the sequence is drying (rank 1), sorting (rank 2), cleaning (rank 3), salting (rank 4), grading (rank 5), standardization (rank 6), packaging (rank 7), storing (rank 8), transportation (rank 9), de-germinating (rank 10) and cutting (rank 11).

The study further portrays that the regular wage of a women dry fish workers is only Taka 50/day. The study also indicates that 78.79% of the respondents work in the usual working hours i.e. from 7 am to 6 pm, 38% of them work from 6 pm to 12 midnight where as 24% work form 12 noon to 3 am. The survey data further indicate that the women dry fish workers often get informal on the job training among which the most popular method is apprenticeship training weighted to 46%, followed by part-time assistance 37%, assistantship 35%, and job rotation 22%. The study reveals that the main parental occupations are farming (36.43%), fishing (31.43%), daily labor (16.79%) and small business (11.43%). It is seen that professional migration has been prevailing in the study areas, the main reasons for such professional migration from farming to fishing is due to land erosion, seasonably effects on crops and lack of availability of fertilizers at affordable price.

Problems of the women workers engaged in fish drying in the coastal areas have been identified to be the lack social security, absence of sanitation, lack of education, early marriage, gender discrimination, lack of alternative income generating activities, lack of capital, high interest rate of loan money, lack of transport facilities, lack of communication facilities, lack of power supply, lack of school for their children in the study areas.

The study puts forward some recommendations to make the role of women workers engaged in fish drying efficient and effective such as empowerment of fisherwomen through skill development, creating job opportunities through development of diversified value added products, involving in product marketing, exploitation of marketing potentialities through innovative packaging & grading and family based enterprise development. The study attempted to link between micro and macro levels, viz. government, non-government organizations, private sectors and community level for better livelihood of target groups through finding out ways and means to build strength of the poor women dry fish workers.

Background of the Research

Bangladesh is fortunate enough to have an extensive and huge water resources in the form of ponds, beels, lakes, canals, large rivers and estuaries covering an area of about 4.34 million ha (Mazid, 2002). Fish and fisheries have been playing a vital role not only in combating the malnutrition problem but also towards improvement of livelihood in Bangladesh. Traditionally
women have been playing a major role in agriculture as about 58% of women are directly/indirectly engaged in agriculture related activities. Fishing could be a full time occupation of men however, the involvement of women is also significant. Nevertheless, full time engagement of women in fisheries is no longer a rare scenario. They are directly or indirectly engaged in activities like making fishing nets, gears, repair and maintenance of the gears, collecting shrimp PL, sorting of fingerlings (especially in coastal areas), fish processing, transportation, marketing etc. Yet, most women in fisheries lack access to physical and capital resources, to decision-making and leadership positions, and to training and formal education.

Although large-scale fisheries development projects, mechanization, and improved technology may increase productive capacities in fisheries, they can also increase the post-harvest workload of women. This extra burden is often undertaken without a rise in pay or at the expense of other possible income-generating activities. Activities that will improve their nutritional and living standards. It is therefore essential to increase women's participation and decision-making in fisheries development policies. Sultana et al., 2001 described the development of a women-led beel (seasonal water body) management committee in Goakhola-Hatiara, Bangladesh.

Women play important roles in food security especially in rural areas. Any economic strategy for agriculture and rural employment linked to poverty alleviation and food security must, therefore, consider gender equity and women's contributions as central issues in productivity and access to resources. A general view of Asian women's status reveals a scenario of diversity, characterized by disparity in women's economic achievement, political participation, educational advancement and social articulation. The gains in these areas, especially among urban women, tend to mask the constraints that are often confronted by rural women within the region. Rural women in Asia continue to struggle under the dual burden of production and domestic labor and are confronted by poverty, lack of access to productive resources, illiteracy, high health risks and denial of market access in profitable food sectors. Women are important productive workers in the world economy, making up about one-third of the labor force. Women in fishing communities too play an important role in fish production all over the world. Their role encompasses social and economic responsibilities, both within and outside the family. There are essential differences between the economic, social and political roles of men and women in most rural communities especially in fishing communities. The fisheries are predominantly perceived as the activity of men. In general the male perception, fostered by cultural traditions and social biases, that women cannot be heads of household continues to persist and creates barriers to access to economic opportunities for these women. Despite of the fact that there are difficulties for women to be involved in fisheries, there is a vast potential for women to contribute meaningfully in the fisheries sector.

In most regions, the large boats used to fish off-shore and deep-sea waters have male crews, while women manage smaller boats and canoes. Many more women engage in fishing with small implements, wading and gleaning the shores for shellfish, and collecting seaweed. In artisanal fishing communities, in addition, women are mainly responsible for performing the skilled and
time-consuming jobs that take place on-shore, such as net making and mending, processing the catch and marketing it.

Women’s roles in fisheries and development are matched to the pattern and scale of aquatic resources, their uses and state of exploitation. Even the legal and constitutional status and rights of women and the stage of economic development of the country seems to have little effect on these relationships. One dominant pattern in the fish sectors is the predominance and sometime even dominance of women in post-harvest activities - processing, marketing, trade, quality assurance and inspection of fish. Development assistance to women here has multiple benefits for them, their families and their countries and for maximizing the economic and nutritional value from fish production. Women and gender programs in fisheries cannot be left to mainstream gender and social welfare agencies as these seldom give priority to fisheries. Fish sectors must develop their own gender approaches. In addition, within the fish sectors, family and community-based approaches rather than women’s activities are more likely to succeed and last.

In the coastal areas many women are engaged in collecting fish seed, transportation, marketing of the fingerlings. It has created self-employment opportunity for women. Involvement of women can be further increased through establishing mini hatcheries for carps. Fish processing (drying) is also an area of women specific enterprise. These dry fishes can be marketed during the lean season to make good return of their investment. Besides, they can also buy fish from the trawler and deep-sea fishing boats directly and continue the fish drying process. Fishing gears mending is traditionally an area of work done by rural women. It is linked with skill development training and marketing of the products; this can also be an important area for the involvement of women in greater number. In Bangladesh, several women are involved with making prawn/fish feed at home for their own use. It has also become an important income generating activity, as they could sell feed to then other farmers in the area.

The lack of women access to livelihood, assets and empowerment opportunities represent a further barrier in the livelihood systems of coastal fishing communities of Bangladesh. Also the Fifth Five Year Plan (1997-2002) of the Government of Bangladesh in fisheries indicate that the need for study of production and marketing of small scale marine fisheries. Thus it seems important to identify key constraints hindering poor fishermen particularly women participation in relation to relevant institution and policy decision making processes in the marine fish distribution and marketing system.

Women play a crucial role in aquaculture production. For example, in Cambodia, higher yields are obtained from fish ponds managed mainly by women. In Thailand and China, they often bear the sole responsibility of farm and aquaculture production because of migration of the males to the cities. However, women’s contribution to aquaculture is often unrecognized and the real benefits from their involvement in the activity are not objectively assessed. This is surprising given that small-scale aquaculture development is increasingly considered as a means by which the livelihoods of the poor, including women, could be improved. The understanding of the poor’s
assets, in terms of human, natural, physical, financial and social capitals, and strategies to cope with external factors such as shocks, trends and seasonality (i.e., vulnerability context) and institutional, commercial and cultural structures and processes, can provide avenues to target development strategies more adequately to the poor and support them to achieve new livelihood outcomes.

Gender issues in fisheries can be seen from two perspectives, one is an instrumental perspective while the other is an empowerment perspective. Instrumental perspective sees women as a vital with a change in gender power relations in the household and in the society. The goal of the empowerment perspective is to challenge the existing gender relations. This can be achieved through development projects, including aquaculture activities. Therefore, from this perspective, it is important to examine whether more equal relationships between genders have been achieved through the uptake of aquaculture by women, whether their choices regarding the management of the activity and the household have increased, and whether women’s self-esteem and self-confidence have improved so that they can be in charge of their own lives.

Empowerment perspective and the instrumental perspective do not conflict with each other. Rather, they complement each other. Women enabled to participate in aquaculture activities will be in a better position to take part in decision making processes. Women who can make decisions can be in a better position to be in charge of aquaculture activities, and thus be more effective in managing their aquaculture activities. It was found that women’s participation in aquaculture was recognized by many researchers and practitioners, but largely from an instrumental perspective. In rural Asia, women are excluded from participation in community-level management of natural and other resources, from relations with external agencies and from political representation. Exclusion of women from management functions has a double effect, first it does not allow the strengthening of a community’s capabilities and secondly it ignores an important portion of social knowledge and thus leads to inefficiency in resource use and retards the overall development of the community’s social capital. Gender and Development (GAD) studies refer to the simultaneous achievement of two goals:

1) The efficiency goal: women’s basic protection and welfare (education, shelter, food security), also called women’s practical gender needs.

2) The empowerment goal: abolition of women’s subordination to men, also called women’s strategic gender needs.

Meeting practical and strategic gender needs, i.e. achieving the two gender goals in development, leads to the empowerment of women through improved access to, and control over, income, but also crucially over the decisions on how to dispose of this income, which is highly relevant to poverty alleviation. Decision-making and empowerment should be gradually extended from the household to the wider community.
Further, marine dry fishes are important source of protein, so it is a favorite food item of middle class families (Jabbar, 2001). Moreover, special emphasis will be given to ensure participation of women in fishery development activities so as to raise the family income leading to the better standard of living. In fact suitable profession for the women in fishery sector will be fish cleaning, cutting, drying, salting, grading, packing and the likes. So, the issue of participation of women in production processing and marketing of dried fish need to be carefully analyzed.

Little research has gone into the question of how fisheries affects the status of women and gender relations in the household and the community, and how in turn these relationships influence the effectiveness of aquaculture in improving livelihoods and addressing poverty. The dangers of a partial integration of gender issues in poverty alleviation projects is to increase women’s workload, without meeting their strategic needs, that is to say, without challenging their invisibility in society. By linking two important fields in rural development: small-scale aquaculture and gender studies, the proposed project will focus on gender issues in fisheries and aimed to develop strategies to improve gender and livelihood goals through aquaculture development. It will also answer the question, Can aquaculture development play a role in women’s empowerment and social advancement and if so, how?

In view of the above, attempts were made to assess the strengths, weakness, challenges and constraints are encountered by while participating in various fisheries activities.

**Specific objectives of the research**

- To review the current socio-economic and livelihood situation of coastal communities involved in production, processing and marketing of a range of coastal aquatic products identified as having potential for the international trade.
- To explore the scope of involvement of the women and adolescent and how can they be better involved in fisheries
- To assess the role of women in production, processing and marketing of prawn (golda) in greater Noakhali region and production of dried fish in Chittagong.
- To review the existing aquaculture policies from gender perspective and gender interactions within the sustainable livelihoods framework
- To identify the existing social and cultural practices that create hindrances to women’s participation in programme/project implementation.
- To examine whether female-headed households (e.g. MOWHILA of GNAEP program) are vulnerable to shocks and risks?
- To formulate recommendations for gender-responsive policies and strategies that will facilitate the advancement of women through their involvement in aquaculture.
Materials and Methods

Noakhali District

The study area

The study was conducted in the south eastern coastal region of Bangladesh covering greater Noakhali and Chittagong districts.

Methods of Experimental data Collection and Analysis

Both primary and secondary data were used in this research. Following survey techniques were used:

- Case studies
- Focus group discussion (FGD)
- Semi-structured interviews

The study was conducted on 176 samples in 14 Upazilas of Noakhali, Laxmipur and Feni district. The samples constituted of

- MOWHILA- 60
- CBO- 57
- CLUSTER VILLAGE PROGRAMME- 36
- CAGE CULTURE-23

For Noakhali area the GNAEP personnel were associated in the project activities. A Consultant (sociologist/gender specialist) from the Department of Sociology, University of Dhaka was hired. The project activities were formulated, implemented and coordinated by Dr. Md. Kawser Ahmed, Department of Fisheries, University of Dhaka.

Chittagong District

The study is the product of the combination of two methods, i.e. empirical survey and desk study. Both quantitative and qualitative methods were used to collect data for the empirical study.

The Study Area

The study was confined to seven coastal fishermen villages in greater Chittagong area. These villages were selected as they were almost homogeneous in terms of social, economical, political and other external environment and fully represent the picture of coastal fishing community of Chittagong area.
Sample Size

The sample respondents were 400 including 280 women selected on the basis of stratified sampling technique. Among others, NGO representatives, local government representatives, non fisher farmers, fish processors, arratders, wholesalers, local traders and retailers were interviewed. Table 1 shows break up of the sample respondents.

Table 1 Break up of sample respondents

<table>
<thead>
<tr>
<th>Type of samples</th>
<th>Number of samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women workers</td>
<td>140</td>
</tr>
<tr>
<td>Fishwomen</td>
<td>140</td>
</tr>
<tr>
<td>NGO Representatives</td>
<td>07</td>
</tr>
<tr>
<td>Local Govt. Representatives</td>
<td>07</td>
</tr>
<tr>
<td>Non Fisher Farmer</td>
<td>14</td>
</tr>
<tr>
<td>Fish Processors</td>
<td>35</td>
</tr>
<tr>
<td>Arratder</td>
<td>7</td>
</tr>
<tr>
<td>Wholesaler</td>
<td>7</td>
</tr>
<tr>
<td>Local trader</td>
<td>35</td>
</tr>
<tr>
<td>Retailer</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
</tr>
</tbody>
</table>

Source of Secondary data

Secondary materials for the study were collected from the Department of Fisheries (DoF), Deputy Director of DoF, Chittagong Division and Institute of Marine Sciences, Chittagong University. Besides, various government documents and publications like Five Year Plans, Statistical Year Books, and Economic Survey Reports were also reviewed to collect data and cross reference. Further, different publications and documents of various national and international organizations like CODEC, NRI, DFID were consulted as well as relevant literature available in different libraries in Bangladesh were reviewed.

Source of Primary data

Primary data were collected through both quantitative and qualitative methods.

Quantitative Method: Direct Interview through structured questionnaire, check list and interview schedule were used to collect primary data.

Qualitative Method: Observation, depth interview, focus group discussion and PRA technique were used to collect the qualitative information.

A pilot survey was conducted in one of the study areas Maheshkhali, Cox’s Bazar in order to know the technical details and conditions of the target sample respondents. The co-investigator and four investigators participated in the pilot survey under the supervision of the researcher. In the light of the results of pilot survey, the questionnaires were finalized. The questionnaire was designed with two main characteristics viz., open ended and close ended according to the nature of information to give scope to the respondents to express themselves freely.
Focus group study included representatives of women workers involved in fishing, fisherwomen, NGO representatives, local govt. representatives, teacher, religious leaders, and local traders. Under observation technique, both structured and disguised techniques were used to get an unbiased view of the situation of fishing community and women participation in fishing.

Results and discussion

Participation of women in production, processing and marketing of fresh water prawn (Golda) in Noakhali

Since 2003 the Greater Noakhali Aquaculture Extension Project (GNAEP) has started to switch its attention towards the hardcore poor living in the charlands of southern Noakhali. GNAEP has identified a range of activities/options to support these households and has initiated a pilot program called MOWHILA (Making Opportunities for Women-headed Households for Improving their Livelihood through Aquaculture). The main activities for this program center on household resource mobilization. The entire program has been implemented through a participatory approach, involving consultation with different stakeholders based on the needs of the target beneficiaries.

The majority of the households living in the Noakhali chars belong to the extreme poor and have few livelihood options. Day laboring, rickshaw pulling or inshore fishing are the common, but limited occupations for male members of the households. It has been found that at least 16% of households in the char area settlement villages in Noakhali district are headed by women (CDSP-II Survey Report, 2003). This situation is mainly due to their husbands’ death caused by cyclone during deep-sea fishing or due to their migration to other places abandoning and/or divorcing their wives. These households are extremely poor and struggle to make a living through a wide variety of livelihood strategies. Typically the occupations of women-headed households’ are homestead gardening; duck, chicken and goat rearing; and making nets and fishing gears. Due to the absence of their male household partner and social restrictions to outside work, many of these women are even compelled to resort to begging. Children and some women in some cases are also engaged in prawn/shrimp fry catching from the rivers during the spawning season, but many are socially excluded and harassed.

Support services from different government agencies for such women-headed household are largely absent. Their household resource status also discourages local NGOs to consider them for micro-credit support. The most serious livelihood issue is human rights abuses committed against women-headed households in the char area including grabbing of land or other resources by neighboring households.

Typically each household in the char areas has received 0.8 hectare of lands from government under a 99-year lease agreement. It was expected that those households would able to improve their livelihood condition through the use of this land. However, in most cases households have lost at least a part of this land, which has either been sold in response to household crisis or has
been handed over (sometimes forcibly) to local money lenders after the household failed to repay loans. Most households only retain a small piece of land around the homestead area with an area of about 20 dec (800 sq.ft.), including a ditch. Typically all the women-headed households owned a small pond or ditch constructed like other households in the char area for raising the level of their homestead. These small ponds retain water only about 6 to 7 (June-January) months. Such ditches are not suitable to cultivate carp or other species due to low water retaining capacity, but they are suitable for nursery systems. The homestead area is also used for chicken rearing and vegetable cultivation following traditional methods. Neither savings nor saleable household assets have been observed in any of these women-headed households.

The women are introduced to aquaculture through learning events which take place through a group approach (typically 15 households in a group) that allows them to learn from each other based on their hands-on experience gained from their own practice. During the learning sessions the Field Trainer creates different learning opportunities for the group related to the respective learning agenda and tries to increase participants’ observation and learning skills. Besides, all the households receive intensive follow-up support from the Field Trainers, especially during the critical period of the crop cultivation or the household livelihood system. Moreover the Project provides cross visits between the women-headed households to enrich their learning and confidence. The Project also educates participants about source of services and how to seek out services based on their needs.

It is not yet possible to fully capture the impact of this intervention since it is less than one year old. Some changes have already been brought about by the intervention, which have affected the women positively in a number of ways As the intervention matures, there may be new areas of impact which are even more important. However, already it is observed that there is:

**Increased Participation in Productive Economic Activities**

The pilot initiative has widened the scope of productive activities for the whole family through increasing the women’s decision making ability in household resource mobilization. Women are found to be involved in a greater variety of homestead based agricultural activities, including some other IGA activities, than previously.

Women have found that carp, prawn and tree or vegetable nursery management techniques are easy to learn and handle. These activities have became a household based enterprise. Vegetable growing in the homestead is a traditional practice, but with improvements it has become an income generating activity. Moreover, the introduction of integrated farming systems in local area has generated an increased demand for vegetable and tree seedlings, thus bringing more income to the women who produce them.
Increased Household Income

Due to increased involvement in more productive activities household income have been increased significantly. The average income of the households can be increase by Tk. 8,000 only by operating a prawn nursery in a 400 sq. m. pond for three to four months. Other income generating options undertaken by the households have not yet resulted in an income stream because of their seasonal outputs. However, it is hoped that the income from other options like homestead gardening, tree nursery or carp nursery will also be significant in due time. This increased income is enabling households to purchase their livelihood needs and also in some cases enabling them to recover their lost productive assets.

Less Vulnerability to Social Risks

When individual women-headed households come together into a group, the group enables them to speak out. Linkage between the groups and Union Parishad with the facilitation of the Project seems to be effective in terms of allowing the members to raise their voices in the disputes which affect them. The group activities have allowed a sharing of their individual social problems among the participating members to search for the solution of the problems collectively. The incidence of misconduct against them by the UP members has reduced dramatically because UP members need their support in the next election. There are evidence that the local community is also helping to resolve many social issues related to women-headed households.

Increased Food Security of Household

Increased production of vegetable and fish from household resources has increased their income as well as allows them to consume a certain portion of the production which ensures a regular supply of vegetable and fish to the households, contributing to improvement in their diets.

Capital

Regular liquid flow of capital to HH was much lower than the per capita income. Less availability of assets than their requirement denotes their less capability to save from surplus income as most HH spend their maximum income to meet their basic needs. The dependency for credit to local money lender indicates less access to and poor performance of public money for poverty alleviation of the rural poor. Borrowing money from the local moneylender involves tremendous risks as lender can get hold of the land if payment is not made within time. However, it seems that after GNAEP came into the scenario of helping MOWHILA group, enabled some of getting back the land previously grabbed by the money lender. Ownership of non-productive physical assets such as Jewellery, denotes improved trend of livelihoods. Owners of these substitute physical assets are in a better position to encounter sudden shocks resulting from any natural calamities like drought or accident.
Asset Ownership

Most of the houses are on the khas land as they got the land ownership as lease for 99 years from the GoB (locally known as BONDOBOSTO). Across the land classes, half the sampled HH owned no cattle or goat. Non-ownership of livestock by large group of members indicates less capability to make additional building blocks for facing emergency or sudden shocks and additional income flow to HH attributed to inadequate surplus income to the HH. Ownership of poultry/cattle by most HH indicates the trend to accumulate easy convertible assets for future use. However, ownership of only poultry denotes less capability to generate income, as that was not enough to make a small contribution to the subsistence and better chance for making extra income to the HH thus better capability to adjust seasonal shocks. Ellis et al. (2003) also reported inadequate ownership of livestock in two districts (fisheries and non-fisheries based) in Malawi.

Ownership of trees particularly timber might be useful for coping seasonal or sudden shocks for example capital loss resulting from the fish mortality, crop loss due to floods, disease treatment, natural disasters etc.

Livelihood Strategy and Income

HH members were found to engage in diverse portfolios of income generating activities, for example, farming, vegetable gardening, fish seed trading and off farm activities. These diverse occupations could be in response to the paucity of on-farm employment opportunity which has driven then towards non-farm to non-crop strategies due to poor human capital for getting alternative or off-farm options. Saha (2002) demonstrated the changing pattern in rural wage pattern in Bangladesh. Fish/prawn farming as a single category of occupation stood on the top of the list indicating fish/prawn farming is the main income source of these MOWHILA/CV members.

The lowest income groups are from the Southern Noakhali as Northern part of this district was slightly better off. In the northern part, cage culture certainly enhanced income while on-farm activities related to cash crop production was found to be higher in the southern part. Land ownership might also enhance more income and on-farm income gradually increased with increased land holdings. Most members encountered difficulties to provide adequate food for their HH due to their less or no food from own production due to low land holdings and low flow of income for purchasing food. February, March and April at the beginning of the year and October, November and December at the end of the year were found to be the most difficult months to fed the HH members. This might be related to the unemployment as the people do not have agricultural employment in these months. This also indicates the importance of income from the prawn fish farming to the food security of HH for nearly half the year.

The livelihoods of this large group of peoples are most vulnerable as any kind of sudden shocks or disruptions can damage the income source and will bring tragic consequences. Bene (2003) proposed the “two pillar” paradigm of circular logic of poverty of fishers. Usually the poor choice
fishing as livelihood strategies and the fishers are poor because they are fisherman. They are also unable to earn from off-farm sources for making positive livelihood outcomes.

Politics (Kinship)

Social capital captures community and wider social claims on which individuals and HH can draw by virtue of their belonging to social groups of varying degrees of inclusiveness in society at large. It facilitates and substitutes diverse income portfolios (Ellis, 2000). Social capital was measured in terms of membership in different organizations and kinship among the members. A few are also a member of CBOs and local club, and also few has good relationship with the local elites like UP chairman.

Economic profile/socio-economic category

Age and marital status

Age is important because of the differential growth rate of HH members which strongly affects HH income, expenditure and vulnerability. More than 60% of the members were found to be from 25 to 40 years i.e. median age group. Peoples at this age with education or training or skills, good health and commanding power on the society with their talent can affect HH overall wellbeing and livelihoods. Women aged between 50 and 55 are less in number. More than 55 years old women are not a member of Cluster and Cage culture. Table 2 depicts that relatively more women aged between 30 to 39 (45 percent) mostly (73%) married are participating in various programs. Almost 47% of the single (widowed, divorced and deserted) women respondents belong to MOWHILA programme, followed by 28% in cluster village programmes.

Sex ratio

Sex ratio is also an important aspect to the HH because it determines the demographic changes that are taking place within the population and HH. Typically the higher the male HH members, the greater chances for higher farm income to the HH. A female child typically increases the vulnerability of the HH due to dowry. The initial results of this pilot intervention in livelihood development for women-headed households has indicated that such interventions centered around small-scale aquaculture can be effective in addressing the issues which confront poor women. The intervention is not only bringing benefit to the widowed women but also acts as an example for the whole women’s community. The Project’s experience to date is that result of the interventions are stimulating other women to undertake similar types of activities.

Economic profile/socio-economic category

It is interesting that 78.3% of households in the cage culture groups in the north of Noakhali have higher incomes and 65.2% fall in the non-poor category. The issue is whether the poorer
households were involved in cage culture or not?. Interestingly, over 50% of these cage culture households see themselves as poor or very poor, which does suggest that they are less well-off in the comparative perspective of their communities. It is probably no surprise that the CBO women members may be among the better-off groups.

**Land ownership**

Members of MOWHILA and CV owned land none bigger than 2 acre. This small land holding indicates that they have very limited chance for producing food and on-farm income. Ownership of cultivable land by only a few means that the remaining HH rely on purchased food for living. This also implies large dependency of most HH on non-crop or non-rice income for making means of living and less chance of making means for producing food and shelter and reducing risks. This kind of land ownership off-course affects HH income pattern and food security. Increase of rural non-farm and/or non-crop income is an agreement with the findings of Reardon et al., (2001). BCAS found no land occupancy by a large group of HH among shrimp fry collectors and poor peoples living in the shrimp producing areas in Khulna district.

Present study shows that majority of the women respondents (88%) is involved in CLUSTER program followed by MOWHILA (76%) and Cage culture (52%)t. These respondents explained economic situation of their HH in terms of the ownership of land and valuable assets. According to the household wealth category, MOWHILA and CLUSTER are the most distressed group as they belong to the lower level wealth categoryt. Cage culture, on the contrary is in a better condition as 65% households belong to non-poor wealth category. According to Bangladesh Economic Review 2005, the annual poverty line income for rural household is Tk. 32,371.00 taka (Tk.562 x 4.8 (number of family member) x 12) while the national level of poverty line is 44.5%.

**Involvement with the project and knowledge about program management**

Women are involved in the fisheries programmes for years, 24% for one and half years, 52% in the cage culture for two years, 35% in MOWHILA program, and 35% in CBO for one and half years and are mostly (91%) aware of various programme management techniques. However, this management implies involvement in feeding, scheduling, etc. not participation in programme design and implementation. Good scores on seed quality, time of stocking by MOWHILA group and general management are pleasing.

**Selling places of fish**

Majority of the women respondents (47%) sell fish at the farm gate while 41% sell their fish through middlemen. Fairly soon CBO is going to act as marketing agent. There are now a handful prawn receiving centre in each Upazila.
Seasonal dimension of economic hardship

Sixty percent of the respondents reported that Aswin and Kartik (September -October) is the most seasonal hardship period for MOWHILA, CV’s and CBO’s but monsoon (June-August) was the bad time for cage culture. 50% of the respondent reported that they spent 1-3 hours per day in the project activity, 27% respondent reported that they work up to 5-8 hours every day. It seems that the members of cage culture group don’t spend much time to maintain their cages.

Human rights/health/socio-cultural constraints

Use of women’s earning

Women’s income is used for various purposes, 92% for food, 73% for cloths and 40% for health services. Across program women spent most of their earning on food.

Awareness of rights

Respondents are found to be much aware about divorce (78%) and dowry (72%) but are less aware about trafficking (5%) and reproduction rights (2%).

Health care system

Most of the respondents (93%) go to village doctor and midwife while members of MOWHILA program are attended by Kobiraj and spiritual leaders.

Socio-cultural constraints encountered by women

Majority (81%) of the respondents did not report any form of barrier but 11% reported religious barrier while 10% reported the existence of some socio-cultural barrier.

Credit sources and initial investment to continue program

Most of the respondents (96%) reported that they will invest from their personal savings while 23% as loan from money lenders. It seems that most women can finance their operations through personal savings indicates that the technology is low cost and the credit-in-kind for prawn in MOWHILA and Cluster Villages is effective. It is interesting that CBO members see the CBO as a source of credit which may not be what GNAEP project want. 59% reported that they will take credit from NGOs, 28% from money lenders and 28% from the CBO. But the NGOs work in the area tend to consider the poorest as not creditworthy. GNAEC has therefore helped the women to get interest-free credit in kind from the private sector. May be they don’t even see this as credit!
Participation of women in production, processing and marketing of dried fish in Cox’s bazar, Chittagong

Role of women in fish drying

Huge numbers of women workers are engaged in different activities in the producing of dry fish, some are sorting the fishes, some are cleaning, some are salting while some are drying. Millions of women, in rural Bangladesh, are suffering from poverty, illiteracy, unemployment and malnutrition. Though lack of protein is the prime reason for malnutrition but they render the key contribution in fish drying industries in the coastal areas. Based on the rank average sequence of the 11 type of activities is - drying, rank 1; sorting, rank 2; cleaning, rank 3; salting, rank 4; grading, rank 5; standardization, rank 6; packaging, rank 7; storing, rank 8; transportation, rank 9; de-germinating, rank 10; and cutting, rank 11 (Fig. 1).

Fig. 1. Activities done by women workers in dry fish production in the Cox’s bazaar area.

It is reported that the women usually dry the fishes after sorting and cleaning. They sort and clean once their male counterpart catching the fishes. Some times all the family members are doing these activities together i.e. husband catches the fish and wife sorts, cleans, adds salt and dries the fish along with their children. Often the marginal women workers, widow and old workers depend on their children or engage themselves with their neighbors and do the same.

IGA of the and income derived from the activities

Income generating activities are the prime determinants of level of income. Income is the important ingredient of purchasing ability and thereby fundamentally affects livelihood of the target people. It is generally observed that increase in income is followed by subsequent rise in
demand which pave the way towards better livelihood. Again, the income generating activities varies based on gender and season. The IGA in peak season and lean season as observed are:

**IGA in the peak season**

Peak season in fishing industry basically refers to the dry season which lasts from October to March. During peak season the fishers are able to catch and dry fish at their highest level, the principal activity of male is Fish catching and their average income is Tk. 2985.72 on the other hand, the principal activity of female principal is Fish processing and drying and their average income is Tk. 1611.90.

**IGA in the lean season**

Lean season refers to the rainy season which from April to September and this period is also prone to natural calamity like cyclone, flood, etc. as a result off shore fishing becomes difficult and the fishers really struggle to dry fish due to heavy rainfall. During lean season usually the income is low compare to peak season and both male and female pursue different activities for their livelihood. It is evident that the principal activity of the male during lean season is being day labor (54.67%) followed by boating (32%), net making (28%), etc. In case of female, the main IGA in the lean season is poultry rearing (52%) followed by weaving 38% and Bamboo works (33%), etc. The average income of male during lean period is Tk.1645.23 whil that of female is Tk.1061.90 .

**Working hours and wage of women in fish processing**

Wage is the monetary value of labor. In the coastal fishing community, wage is calculated based on both per day and overtime hours. The regular wage of a female dry fish worker is only Tk. 50/day day which is very poor. The overtime rate is also very poor and frustrating, Tk. 50 for the first 6 hours, and the rate is Tk. 50 even during the midnights. However, 78.49% of the respondents work in the usually working hours i.e. from 7am to 6 pm, 38% from 6 pm to 12 midnight whiles 24% after midnight from 12 am to 3 am.

**Type of fishes used for drying**

A number of fishes are usually dried during the peak season. The proportion of different fishes used for drying is ribbon (100%), bombay duck (97%), shrimp (91%), pomphret (67%), and faishsha ilish (57%). It was seen that most of the respondents (47%) were semiskilled and 31% were unskilled while only 22% were skilled.

**Training of the workers**

Training is a continual process of helping workers perform at a high level (Skinner and Ivancevich, 1992). It is used to be thought that ‘training was like measles’ a dose in one’s youth was sufficient for life (Jewel, 1998). It may be imparted at the workplace or at a place having
special training facilities. It may be conducted on the job or off the job. Only 12.14% of the respondents got training on their profession i.e. in drying fish. It is reported that basically the NGOs arrange different types of off the job training program for the fisher folk in general and for dry fish workers in particular. 64% of the trainees attended lecture session, followed by counseling 50%, group discussion 41% and simulation technique 23%. Reportedly, the dry fish workers also attain some on the job training by their predecessors or supervisors and these are naturally informal. The women dry fish workers often attain informal on the job training among which the most popular method is apprenticeship training weighted to 46% followed by part time assistance 37%, assistantship 35% and job rotation 22%.

**Buyers of dry fish**

Selling is a monetary transaction that involves at least two parties. It is one of the oldest professions (Kotler, 1999). Though modern selling is a complex process and involves a number of steps, but selling function of the dry fish processors in coastal areas is much more easier as it does not include all the steps of modern selling like prospecting and qualifying, pre-approach, approach, etc. Rather in case of dry fish selling by the women dry fish workers in the coastal areas, usually different parties come and visit the yard to buy dry fish. The major parties are aratder (90%), dadondar (88%), processor (82%), wholesaler (73%) and consumer (32%). It is also reported that often the aratder, dadondar and the processor is the same person and control the whole marketing channel of dry fish.

**Assets: types and valuation**

The assets may be physical and natural capital.

**Physical assets**

Physical assets of coastal dry fish workers include basic infrastructure such as housing for shelter, indigenous transport, communication, etc. Further, radio, bicycle, and TV play a significant role in communication especially during cyclone, flood, and other natural disasters. 84% of them have house to live with average value of Tk. 8,200, 40% have some plants with average value of Tk. 1,947, 21% have small black and white TV valued at Tk. 3,800, and 52% have radio valued at Tk. 326, and Jewelry worth Tk. 2,375 was owned by 47%. Boat is the basic production equipment, which enables the fishermen to pursue their livelihoods.

**Natural capital**

Natural capital includes land, water, bio-diversity and the likes. People of coastal fishing communities depend on a various types of natural resources for pursuing their livelihood. Land is an important socio-economic indicator of the rural and coastal people. Fish production depends on availability of these natural resources. Again water ways are also used for transport of persons
and produces. Fresh water is used for human consumption and for preserving fish. Though sanitary latrine and source of pure fresh water are physical assets, they were considered as natural capital as they constitute the fundamental need of human being. Access to natural capital is shown in Table 2. 68.57% do not have their own land other than the household area, 43.57% do not have access to tube well water and 61.43% do not use sanitary latrine. These show a poor and distressed livelihood of the sample fisher folk.

**Table 2 Access to natural capital by the sample respondents**

<table>
<thead>
<tr>
<th>Response</th>
<th>Access to Land</th>
<th>Access to Tube well Water</th>
<th>Access to Sanitary Latrine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>in %</td>
<td>Frequency</td>
</tr>
<tr>
<td>Yes</td>
<td>88</td>
<td>31.43%</td>
<td>158</td>
</tr>
<tr>
<td>No</td>
<td>192</td>
<td>68.57%</td>
<td>122</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>100.00%</td>
<td>280</td>
</tr>
</tbody>
</table>

Source: Field Survey

**Demographic profile of the respondents**

Demography is the study of human populations in terms of age, sex, size, density, location, race, occupation and other statistics. Demographic characteristics are closely related to the livelihood.

**Age structure**

Age structure vitally affects the composition of a society as it determines the percentage of dependents and incomer earners in family or in a society. The changing age structure of the population will result in differential growth rate for various age groups over the decade, and this difference will strongly affect the growth and development of target groups. (Kotler and Armstrong, 1995). The average age of the women respondents is 36 years. Most of them (37%) fall in the age group of 30-40 years followed by 20-30 years (16%), less than 10 years (15%), 40-50 years (14%) and 10-20 years (11%). It is seen that a significant number (11+15 = 26%) are children and they are involved in fishing or fishing related activities instead of spending time in school which shows a key socio-economic perspective of the fishing community. It appears that there is potentiality of development of family based enterprise which will open up job opportunities for all family members.

**Family size**

Family size has definite bearing on level of saving and investment and therefore on the emergence and development of a family. The small size of family enables the family members to live a prosperous life because it helps to minimize the cost of living and creates opportunity for saving. A total of 280 respondents have 1811 family members with average family size of 6.47, which is higher than the national average of 5.26. This shows that the respondents have fairly large family which also proves that family planning campaign of the government is not that
successful in the study areas. Again, such large family size, in turn, causes lower rate of earning, low rate of saving and ultimately they have to lead a poor livelihood.

Education of the respondents

Formal education has always been considered an important asset of an individual in building his/her occupational career (Lipset and Bendix, 1959). It not only helps in acquisition of required skills for a job, which demands non-traditional skills but also imparts knowledge about the different occupational opportunities (Deshpande, 1959). About 46% of the respondents were illiterate, the education level of the women fishers is 38% “can write name only”, 13% up to class V, 2.50% up to SSC and only 0.71% above SSC.

Education of the respondents’ family members

Illiteracy rate among the family members is 26%, which is lower than that of their predecessors i.e. their parents or sample women fishers. Subsequently, the literacy levels are also increasing compare to their parents. This shows that the socio-economic condition of the sample fishers and their family members is gradually improving though still the situation is not up to the mark.

Marital status of the women respondents

Marital process is a way to establish linkages among different families. Further, family background is an enabling factors since the bundle of skills, experiences and training necessary to sense, view, evaluate and exploit the given opportunity from family circle free of cost easily and quickly by and without undergoing exploitative apprenticeship system (Chowdhury, 1988). Again, relationship through marital process open up the choice of opportunities for potential livelihood strategies. Moreover, a married woman may enjoy more security in her livelihood approach due to the presence of her husband and other relative’s of husband family. 38.57% of the respondents are married, 26.43% widowed, 13.57% divorced while 12.86% unmarried and 8.57% old.

Occupation

Occupation is another key element of demography, which also has impact on the socio-economic condition of the individual. Optimum occupation can lead to different income generating activities and thus facilitate better livelihood. 78% of the respondents are involved in fish processing followed by weaving (54%), poultry rearing (49%), farming (37%), cattle rearing (25%), bamboo works (43%), daily labor (23%) and housewife (12%). Therefore, it is evident that the women are highly involved with different types of activities instead of being housewife only. Their main parental occupation was farming (36.43%), fishing (31.43%), daily labor (16.79%) and micro business (11.43%). It proves that professional migration has been prevailing in the study areas. It is reported that the main reasons for such professional migration from farming to fishing is due to
land erosion (due to tide) in the coastal areas, seasonality effect on crops i.e. mainly paddy and lack of availability of fertilizer at affordable price.

**Fishing assets of the respondents**

Boats and nets are essential for continuous flow of catching of fishes. Other fishing assets like fishing gears, fish processing equipment such as drying racks/slabs are essential to support livelihood strategies. 9.29% of the respondents have their own boat, 15.36% own fishing nets and 7.50% owns fishing gears. It also shows that among the boat owners, 26.92% have boat with engine and 45% without engine 45% while 19% have both.

**Household type**

Household type is an outcome of the respondent’s income level and social condition. Better household provides better safety, mental relaxation and therefore acts as an inducement for higher earning and thus paved the way for better livelihood. Most of the respondents have houses made of hay and bamboo (41.443%) followed by soil and hay (28%), tin(24%) and tin and brick (6.43%). It is reported that most of the respondent’s house is vulnerable to cyclone, tide and other natural disaster as they have to build their house beside the embankment or seashore.

**Size of land**

Size of land holding is an important socio-economic indicator of the rural people. Land size is also important for various types of occupational activities. Bertocci (1970) designed 2.0 acre as the subsistence size of land in his study of two Comilla villages. Among the 146 land owners, 59% have only 1-4 dec, 23% have 5-8 dec, 12% have 9-12 dec, and 6% 3+ dec land. Therefore, in terms land ownership, socio-economic condition of the sample respondents were very poor.

**Financial assistance**

The coastal fishing communities, in general, are very poor. In most cases, more than 50% of the fishermen have no such valuable assets including land (Jeusen 1985). It has been reported that after the death of a poor man or the only bread-winner of a family, it becomes difficult for his family to finance the burial of the deceased, not to speak of the food and shelter for his dependents. Therefore, they need to depend on loan and other financial assistance from different formal and informal sources for their day to day livelihood as well as for optimum production of dry fish in the peak season.

**Rural financial market of Bangladesh**

The rural financial market in Bangladesh is composed of two sources – institutional and non-institutional. The most significant feature of the market is that an overwhelming portion of the credit in this market is supplied by the informal sources. It is estimated that out of the total credit
supply, about 85% comes from the non-institutional sources and 15% from institutional sources. (Ahmed, 1983). Further, only 38% demand for credit was fulfilled by the formal credit giving agencies (Maloney and Ahmed, 1988). The coverage of formal sector is skewed towards rich farmer, village leaders, elite and the likes. The rural financial market is found to be significantly dominated by informal sources and rural people have been suffering in the form of credit scarcity from formal market and high cost of credit from informal market. This is truer in the case of coastal fishing communities of Bangladesh.

**Purpose of taking loan by the respondents**

The women workers involved in dry fish production need financial assistance both in the peak season as well as in the dull season. During peak season, they need loan to buy different ingredients like salt, chemicals, etc. for drying fish. They also need financial help during peak season to own fish catching elements like nets, boat, fishing gears, etc. They also need help for support services such as packaging, transportation, storage facilities and the likes for continuity of the activities. Again during dull season, as the usual income generating activities are under threat, they need financial help for the fulfillment of their basic needs i.e. food, housing, health care, sanitation, education etc. Moreover, the coastal areas are prone to natural disaster like cyclone, tidal bore, flood, etc., once affected, they need financial assistance immediately for mere survival. Majority of the respondents (73%) took loan for social function like marriage of daughter followed by starting a tiny business like tea stall (63%), purchase of fishing implements (49%), recovery from natural disaster (46%), medical treatment (41%) and funeral (40%).

**Loan sources**

Majority (70.71%) of the respondents took loan from informal sources whereas 22.50% from formal sources. Among the non-institutional sources, ‘dadandar’ provided financial assistance to 25% followed by relatives (22.14%), paiker (7.86%) and jaladash samity (5.71%). Among the formal sources, NGO provided loan to 13.21%, and samity (cooperatives) to 6.79%.

**Reasons for preferring non-institutional loans**

Among the reasons for preferring non-institutional sources, was ‘easy to get’ ranked the highest (75.35%), ‘no collateral’ (65.71%), ‘no formalities at all’ (40.00%), ‘no fixed installment repayment’ (31.43%) and others (9.28%).

**Interest rate**

Usually the rural fishing community pays a high interest rate as they get loan from non-institutional sources. This is even truer for coastal women dry fish workers as the women workers neither have financial strength to keep as collateral nor they have bargaining power. It is reported that the respondents usually pay interest per say basis which if converted into yearly terms,
varies from 120% - 280% per annum. But the rate of interest loan from institutional sources was found to vary from 12% - 18% depending on the nature of credit. In most cases the fishermen have to handover all of their catches to the ‘dadandar’ at a price which is about 50% of the market price.

Organizational association

People are dependent on resources in pursuing their livelihood strategies and organizational association is a key element of social resources. Social resources are determined by relationships and networks, which exist within nuclear and extended families, and among communities and groups. These social relations influence the way in which people can access and make use of their assets. 94% of the respondents are associated with an organization among which 71% are associated with NGOs, 56% with cooperatives, 12% have their own group. It is reported that cooperatives are made of about 150 members (e.g. Jaladashpara Shamabai Samity).

Attitudes towards NGO

NGOs help in various ways for improvement of livelihoods of the fishing communities. A number of NGOs operate in the study areas among which COAST, CODEC, BRAC are worth mentioning. Besides, Grameen Bank is also working in the study areas.

Attitudes towards NGO is positive because NGOs render the following benefits - provide collateral free micro credit, undertake social awareness program, provide technical assistance, conduct training programs, provide sanitary latrine, help in infrastructure development, marketing etc. The nature of benefits that the respondents got from the NGOs were ‘loan at low rate’ weighted to 48.57% followed by sanitary latrine 44.29%, social awareness program 26.43%, cooperation 22%, motivation 19.64% and training 12.14%. It is reported that from NGOs they often get collateral free loan at low rate but still the rate is higher than that of formal sources like formal commercial bank. Good to note that the rate is lower than that of the rate of dadondars. This is a key benefits for the women dry fish workers as they don’t have any access to the formal institutional credits. Besides, they got cooperation from NGOs during the natural disaster also during their family problems. In addition, NGOs undertake different motivational and social awareness program for the respondents in the study areas.

Problems of women fishers

Coastal women fishers are facing a number of problems related to social, economical, political, technological, etc. Among the problems, lack social security (98.88%), lack of stable government policy (92.86%), lack education (88.66%) are the most acute problems. The next serious problems of the women workers are lack of capital (87.86%), lack of legal protection (84.68%)
and high interest rate (82.62%) are worth mentioning. Due to such acute problems, the sample respondents are deprived of their basic rights and basic livelihood amenities.

**Recommendations**

It is recommended to take the following specific steps to ensure better role of women in production, processing and marketing of dried fish in the coastal areas of Bangladesh.

**Creating job opportunities through value addition in the marketing chain**

Dry fish industry is one of the key protein suppliers for the people of Bangladesh. It has immense potential from Bangladesh economy point of view as it is a labor intensive industry and indigenous technology is used here. There is enormous prospect of value addition at different stages of dry fish production as the final product (which is ready to consume) requires a number of processing steps and different parties are involved in such processing steps. The following discussion focuses on the potential dry fish sector highlighting the scope for job creation through value addition in different processing steps and in the marketing chain.

**Marketing potential through innovative packaging and grading**

Dry fish is one of the favorite items in the day to day meal of the Bangladeshi people in general and Chittagong people in particular. People prefer dry fish both as a paste (locally called vorta) as well as with vegetables irrespective of their income status. Different types of dry fish like ribbon fish, bombay duck, laittya etc. are usually listed at the top of the preference. The producer can take advantage of this by augmenting the dry fish in innovative packaging. The low income group usually buy the generic ones available at the general fish market. But for the high income group, the producer can sell high graded dry fish in innovative and attractive packages under a specific brand name. The considering factors for such packaging is obviously the status, perception and individual need of high income groups. For example, in case of dry shrimp, the producer can grade the fish based on size viz. big, medium and small. Then all the three sizes can be included in three cubes of one package. Such package then can be sold under a brand name at different shopping mall like “Well Mart, Khulshi Mart, Agora, Shop and Save etc. Even the producer can go for contract with ARONG or others of the kind to sell the packaged dry fish in their store under their brand name.

**Export earnings**

There is tremendous demand of dry fish in the international market. This is because, there are lots of Bangladeshi nationals in the foreign countries who consider dry fish as a delicacy in their meals. The dry fish producers can export the packaged dry fish in foreign countries and thus can contribute to the national economy by earning foreign currency. For this, the producers need to be careful about the grading as the dry fishes selected for export should be of international standard.
Job creation through family based enterprise development

As dry fish industry requires labor intensive indigenous technology and there is huge scope for value addition at different steps of processing and marketing chain, establishment of family based enterprise will be an attractive proposition to cater these needs of value addition. The fishermen’s family members can be engaged in different activities of producing and processing dry fish; like if the husband and male child catch fish in the sea then his wife and female child can sort, clean, and grade the fishes. Then the female family members can add salt and de-germinating elements at home before drying them. The male members then take the dry fish to sell in the market. Again, all of them can help each other to prepare some innovative package (as mentioned above). They can categorize their produce based on the nature of the product like “ready to cook”, “ready to eat” and based on the size of the product as well. After such value addition, the male partners can supply those produce in the urban areas for selling in the one stop shopping malls for the consumption by members of the upper class in the society.

Fisher women empowerment through skill development

Entrepreneurship courses may be introduced in the curricula of formal and informal educational instructions of Bangladesh, to enable the school and college drop outs to become job creators in stead of job seekers. NGOs, GOs especially Ministry of Fisheries and other supportive organizations may provide extensive need-based training to the women dry fish workers to improve their skill for better processing and marketing of dry fish.

Formation of fisher women organization

Formation of fisher woman organization and groups can play a significant role in the development of a healthy and sound social culture in the country that will ensure the empowerment of women in the coastal areas of Bangladesh.

Sustainable women’s participation

Participation of women becomes sustainable if there is

- Provision of institutional credit
- Gender sensitive program designing, planning and implementation mechanism.
- Training on management and marketing skill development.
- Legal reform ensuring ownership of resources.
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