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About the Cover

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ANALYSIS

Gender perspective and effectiveness of group dynamics in women empowerment: a study on Self help group initiative in mussel farming along the Malabar Coast, Southern India

Vipinkumar VP, Asokan PK, Mohamed KS, Kripa V, Geetha Sasikumar, Vidya R, Athira PV

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Gender perspective and effectiveness of group dynamics in women empowerment: a study on Self help group initiative in mussel farming along the Malabar Coast, Southern India

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ABSTRACT

Mussel culture proved as one of the profitable ventures in marine fisheries sector of Kerala, successfully undertaken by women's Self Help Groups (SHGs). The practical dissemination of bivalve farming technologies in the potential maritime locations in Malabar coasts was undertaken in Kadalundy of Vallikkunnu grampanchayat in Malappuram district of northern Kerala by training 62 women fisherfolk under Community Development

Scheme (CDS) of *Kudumbasree* District Mission. These women were mobilised into 11 SHGs comprising 60 members with a provision of a distinct loan amount and 40 % subsidy with a reasonable nominal amount as beneficiary contribution in each SHG. The members possess the joint responsibility through a strong internal amendment with a firm base of interpersonal trust. Assessment of the Group Dynamics Effectiveness of the SHGs was attempted by interviewing the members with standardized protocols developed and the groups with substantial effectiveness score were identified. A breakthrough harvest results were noticed in the SHGs due to the high market demand of mussel up to 5 Rs per piece and Rs 250 per kg of meat. The computation of harvest particulars, economic analysis, estimation of socio-psychological characteristics and yield dynamics were undertaken in the SHGs and brought out a BC ratio of 3.5:1 on an average. The influence of personal and socio-psychological characteristics of SHG members on Group Effectiveness also was assessed along with gender perspectives on decision making aspects and gender need analysis in mussel culture. The harvest results of mussel farming by the women SHGs had great expectations on SHG enterprise as a major means of poverty alleviation as each SHG in turn ensures economic sustainability of 5 families. The local availability of green mussel and local self sufficiency of edible mussel products of diversified uses with low cost of production and moderate selling rate make satisfied customers in turn attracting consumers of other states to the enterprise. Ultimately through gender mainstreaming and women empowerment and socio-economic upliftment through the mobilised women SHG, the local economic development of Vallikkunnu gets improved which in turn leads to radical development of fishers of Kerala state in a broader sense. Success cases of SHG mobilization were elucidated and documented which could be used as case models for promoting group action of SHGs on a sustainable basis.

Key words: Gender Perspective, Marine Fisheries, Group Dynamics, Case Study

Abbreviations: SHG: Self Help Group, GDEI: Group Dynamics Effectiveness Index, WID: Women in Development, GAD: Gender and Development, EEZ: Exclusive Economic Zone

1. INTRODUCTION

Mussel farming has been proved as one of the profitable ventures in marine fisheries sector of the coastal belts of Kerala successfully undertaken by mobilizing the women's self help groups. The Central Marine Fisheries Research Institute (CMFRI), Kochi had successfully demonstrated mussel farming in the estuarine areas of Kerala, especially north Malabar which resulted in a positive socio-economic impact on the coastal fishers especially among women. Marine mussels are bivalve molluscs belonging to the family "Mytilidae" and form one of the most dominant cultivable species all over the world (estimated culture production is about 1.5 million tonnes in 2003). Total global trade of mussel is involving 300,000 t, worth about US $ 400 million. They give the highest conversion of primary producers (phytoplankton) to human food, and culture of mussels in the column waters can increase the seafood production several folds. In India, two species of marine mussels (green mussel, *Perna viridis*, and the brown mussel, P. indica) are distributed in the rocky coastal areas where they support a traditional sustenance fishery, but scope for increasing natural production from the existing beds is rather limited (Appukuttan *et al*. 2001).

Maritime states along the west coast of India have extensive estuaries, which open to the Arabian Sea. These estuaries are subjected to wide variations in hydrographic condition due to the southwest monsoon during June to September and a less intense northeast monsoon from October to November. The mean of annual rainy days in Kerala has been estimated as 130 days, and of this, 66 % is during June to September, 19 % during October to December and 15 % during January to March. Based on the hydrographic condition, in most estuaries, two phases, viz., a marine phase during December to May and a brackish water phase during June to November, have been observed. It is during the marine phase that the ecosystem becomes conducive for mussel culture. The offshore of this coast is subjected to strong currents and upwelling phenomenon during the monsoon season. However, in the fair season, these areas can be used for mussel farming. Long-line units and rafts were utilized for mussel farming in the deeper offshore sites. Both these methods proved to be highly successful.

In the transfer of technology process of mussel farming, the constraints which were foremost in installing the development of mussel culture industry in the 1970s and 1980s were lack of awareness, social inhibitions and finance. Perceiving the drawbacks in extension programmes, in the beginning of the 1990s, an action programme was initiated for location testing as well as for disseminating farming technology in estuaries, backwaters and coastal seas. It was decided to set up demonstration units at several sites along the coastline with the direct involvement of fishermen. This led to the growth and development of mussel farming as a rural development programme especially in the southwestern parts of India, in the states Kerala and Karnataka, especially in the former (Mohamed *et al*. 1998; Sasikumar *et al.* 2000, 2006) The estuarine ecosystems which are less turbulent and shallow (< 4m) are less prone to risks like loss due to heavy weather and poaching. The demonstrations with fisher participation in north Kerala convinced them about the feasibility of mussel culture, and the local fishers of this area set up their own mussel farms with technical guidance from CMFRI and financial assistance from local governing bodies. From the ensuing season onwards, different fisher groups took up mussel farming as a seasonal avocation, and farmed mussel production in the region was trebled (Appukuttan *et al.* 2000).

The scientists of the CMFRI in consultation with the district administration created a master plan to transfer the technology to potential women beneficiaries. The DWCRA (Development of Women and Children in Rural Areas) was identified as the most suitable scheme intended for groups of women beneficiaries below the poverty line. In 1996, groups of women from the North Kerala (Kasaragod district) started their own mussel farms with the financial support extended by the Development of Women and Children in Rural Areas (DWCRA) and Training of Rural Youth in Self-Employment (TRYSEM). The entire farming operation, viz., starting from seed collection to marketing, was done by the women themselves. They were

able to pay back the loan within the stipulated period. In succeeding years the farming activities were intensified by the involvement of more groups. Now, mussel farming is a part-time vocation of the coastal women of North Kerala. The local banks and district administration have taken a lead in providing financial assistance to these fishers. Mussel farms are usually set up by November–December, and the crop is harvested before June (to avoid large-scale destruction due to monsoon). Though it is only seasonal, women have recognized it is something which they can do with minimum effort and financial commitment.

Kadalundy areas of Malappuram district in Malabar location in Northern Kerala is very conspicuous for bivalve farming Self Help Groups of women mobilized by *Kudumbasree* programme of Kerala State Poverty Eradication Mission, launched by the Government of Kerala in 1998 for wiping out absolute poverty from the State through concerted community action under the leadership of Local Self Governments, and is today, one of the largest women-empowering projects in the country. The noteworthy and illustrious programme has 41 lakh members and covers more than 50% of the households in Kerala. Built around three critical components, micro-credit, entrepreneurship and empowerment, the Kudumbashree initiative has today succeeded in addressing the basic needs of the less privileged women, thus providing them a more dignified life and a better future. (Photographs 1 & 2)

Group Dynamics: The internal nature of the group as to how they are formed, what their structures and processes are, how they function and affect individual members, other groups and the organisation.

The mussel farming venture initiated by CDS of Vallikkunnu panchayath has undergone the practical dissemination on popularisation of bivalve farming technologies in the coastal belts of potential maritime locations in Malabar coasts in Kadalundy areas of the grampanchayat in Malappuram district by training 62 women fisherfolk with the Community Development Scheme (CDS) of the *Kudumbasree* District Mission. These women were mobilised into 12 SHGs comprising 60 members with a provision of loan amount worth Rs 1.25 lakhs and subsidy of Rs 0.50 lakh with a reasonable amount of Rs 6,250/- as beneficiary contribution in each SHG. The women SHG members take loan at their own responsibility for mussel culture enterprise. The five members of each SHG possess the joint responsibility through a strong internal amendment with a firm base of interpersonal trust. An assessment of the Group Dynamics Effectiveness of the SHGs was attempted by interviewing the members of the SHGs with standardized protocols developed and the groups with substantial effectiveness score were identified.

1.1. Scope of the study

Marine mussels form one of the most dominant cultivable species all over the world and give the highest conversion of primary producers (phytoplankton) to human food. The culture of mussels in column waters can increase sea food production several fold.

Two species of mussels, namely the green mussel Perna *viridis* and the brown mussel *P. indica* are considered for culture in India. The former is widely distributed and the latter has restricted distribution along the southwest coast. Kerala State is called the 'mussel fIshery zone' of the country and extensive beds of both the mussels occur in this State. The technology of farming has been developed for both the species and *P. viridis* is seasonally cultivated by small scale farmers in many estuaries of Kerala state. Both green and brown mussels thrive well under marine conditions and a salinity range of 30-35 ppt is preferred. Sudden lowering of salinity below 20-25 ppt may result in mortality. The production particulars of mussel for the last 2 decades are presented in Table 1.

Table 1
Production of Mussel for the last 2 decades

Year	Mussel Production in Tonnes
1996	2
1997	27
1998	200
1999	609
2000	800
2001	1000
2002	1250
2003	2000
2004	3250
2005	4500
2006	10060
2007	7894
2008	16789
2009	18432

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2010	14817
2011	9956
2012	8703
2013	9385
2014	4649

Source: Molluscan Fisheries Division, CMFRI, 2015

The farmed bivalve production increased marginally by 9% to 14,085 t during 2013. The oyster production increased by 12% and mussel by 8%. Mussels formed 67 % of the production. Mussel farming is constrained due to lack of adequate seeds, quality of seeds and issues of environmental overcapacity in the main farming area.

Gender equity and equality: Equity is the means and equality is the result. Equality is rights based in such a way that women and men have equal rights, enshrined in international standards and treaties and should have same entitlements and opportunities. Equity means justice so that resources are fairly distributed, taking into account the different needs of women and men.

As the present study dealt with the documentation of case study on gender perspective in mussel farming SHGs of women, in a descriptive way, focusing attention on the gender equity and equality, there is ample scope to explore the gender empowerment paradigm along with emphasis on the three pillars such as economic empowerment, well- being and decision making. Looking into the policy and programs for aquaculture development in India, it could be observed that the production from marine sector has almost attended the plateau where as aquaculture has a great potential. Being an important stakeholder of fisheries sector, women shoulder various roles. Traditionally fisher women (women belonging to particular caste, sub-caste, etc.) are important stakeholders in fish processing and marketing. With increase in awareness level among women on economic activities and dissemination of aquaculture techniques, rural women from other caste have joined the fishery sector. Now we find women besides their reproductive roles, assumed new roles in scientific fish culture, processing and marketing. Women constitute 50% of the total population and comprise one-third of the labour force. So the development of our country cannot be assured leaving behind this large population. Though, it is largely accepted that, the role of women in fisheries sector is limited to processing and marketing, then role in other activity like aquaculture cannot be totally ignored. On the other hand, their participation in this sector is needed to be strengthened for better production. The fisheries activities are broadly categorized into capture and culture and the processing is coming up as a separate industry. The resources under capture and culture include – marine, brackish and fresh water. Whereas capture fisheries dominate the marine sector, culture activity dominates inland waters. During last five decades, the fisheries sector witnessed a continuous rise with a paradigm shift in the production scenario from that of marine to inland fisheries and aquaculture is gaining priority over capture fisheries. Production of fish from capture sector (with marine and fresh water) has been stagnant for nearly a decade. Hence, the demand shifted automatically to the aquaculture. Aquaculture has shown a continued expansion since 1980s and established a better position among food production sector. Its growth rate registered more than 6%, which is higher to the production of food grains, milk, eggs and many other food items.

Gender Discrimination: The systematic, unfavourable treatment of individuals on the basis of their gender, which denies them rights, opportunities or resources.

Like any other sector of agriculture, women participation in aquaculture remains largely unnoticed. When the question of adoption of new technology comes the women are rarely considered a target group. But since women constitute 50% of total population, negligence to bring them to the front line action is always a negative approach to the total development process. It is estimated that women carry out almost 70% of agricultural workload, but in aquaculture, their role has not been properly identified. May be it is due to the ignorance of women about the technology, cultural and social barriers, women perception and so on. Women's role in fisheries is very significant and there is gender bias in respect of their works. This discrimination may be noted out from the country's scenario through the economic upliftment of fisherwomen through appropriate policies, programmes and projects. The inequalities between men & women in rural India are observed in the social, cultural and economic lives and are being maintained in the society through various forms of bias. But they are the important stakeholders of our development process. Extension system, hardly targets the women folk for technological empowerment. Women participation in fishery sector is age old. But they are still engaged in traditional method of processing and marketing. Their participation in culture sector is not yet properly defined. Aquaculture is a developing sector and women participation in this sector needs a meticulous planning for technological empowerment encompassing the social and economic barriers. On-farm trials conducted by DRWA, CIFA, CIBA and CMFRI have brought out, the strong motivation and capability among women for taking up aquaculture (Freshwater, brackish-water and Marine). Empowering women in different aquaculture practices (Freshwater and brackish-water) can provide suitable option for sustained economic and nutritional security of the family and thereby an in-depth observation on these dimensions made through the present study has ample scope to explore the paradigm of gender balance and women empowerment based on views of Women in Development (WID) and Gender and Development (GAD).

Gender mainstreaming: A strategy articulated with gender and development goals and a commitment to gender equality in all aspects of policy and programme design and implementation which aims to transform the mainstream at all levels to end gender discrimination.

According to Kieffer (1984), empowerment is an interactive process which occurs between the individual and his environment, in the course of which the sense of the self as worthless changes into an acceptance of the self as an assertive citizen with sociopolitical ability. Sathiadhas and Femeena (2005) explored women empowerment paradigm of clam fisheries of Kerala. Rational utilization of common property resources for sustainable development without endangering the

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environment is possible through community participation. The development and empowerment of weaker sections and gender mainstreaming in the Indian fisheries sector in a broader visualization will be materialised to a great extent with poverty eradication programmes though the transparent media namely Self Help Groups. Self Help Groups can play a vital role for the fisheries sector development. The utmost important requisite for this is ensuring participation of fisherfolk, especially women in the planning and implementation of various coastal sector development programmes. The open access regime existing in the harvesting of marine fishery resources in our country warrants stronger emphasis on invoking technological innovations as well as management paradigms that reconcile livelihood issues with concerns on resource conservation. Being the premier Marine Fisheries Research Institute in India with more than 6 decades of service to the nation, the Central Marine Fisheries Research Institute (CMFRI) suggests ways and means to sustain the potential source of food in capture and culture fisheries and their optimum utilisation. (Modayil et al., 2008) Innovations do not happen in a socio-political vacuum. It is the extent of partnership between the research and the client system that decides the fate of any technology in terms of its adoption or rejection.

2. MATERIALS & METHODS

As this is basically a descriptive study on the practical success case study on gender perspective in mussel culture, the data gathering protocols on gender mainstreaming were standardized with major variables and dimensions to be quantified for the data collection with expert consultation and local enumerators trained for data collection in the potential pockets where mariculture technologies were disseminated were used to gather primary data. Similarly the secondary data collection also contributed a vital role.

Data were gathered on socio economic and behavioural aspects from fisherfolk respondents among the different types of identified stakeholders under primary, secondary and tertiary sectors throughout the country in the study locations of the mariculture technology. The information was essentially gathered through secondary data collection and triangulation done in consultation with major sources of information such as the fishermen co-operative societies, Self Help Groups of fisherfolk, through the survey staff of the Fishery Resource Assessment Division of CMFRI and marine fisheries census reports of CMFRI. Data were also gathered on demographic characteristics and elucidated specific case studies of women in mariculture sector. A true introspection of the livelihood of women fisherfolk mobilized as Self help Groups in the selected mariculture locations was also undertaken in the present study. The dependent variables like Group Dynamics Effectiveness of SHGs were measured by developing appropriate indices like GDEI (Vipinkumar and Singh, 1998) and arbitrary scales developed for assessment of gender perspectives like participation profile, constraint analysis etc. (Photographs 3, 4 & 5). A true introspection of the livelihood of women fisherfolk mobilized as SHGs in the selected locations of Malabar Coast was also undertaken in the present study. The livelihood analysis encompasses all the strategies and assets that individuals and households use to earn a living (DFID, 2001; CBCRM Resource Center 2003; Graham and Tanyang, 2001; Arciaga *et al*, 2002; Ashby, 2003, Vipinkumar, 2005).

For assessing the gender perspectives in decision making, and gender need analysis, the extent of decision making in various activities concerned with mussel farming as per the response of male and female separately was assessed. Decision making aspect of fishermen is of paramount significance with regard to marine fisheries sector in the Indian context. (Srinath, 1990) The gender response in decision making in various activities in bivalve farming such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female. It is interesting to note that, the decision making aspect on the various phases of bivalve farming being accomplished by 'male alone' in most of the activities as per the response of male and female without much difference. Similarly, the gender needs in various activities concerned with bivalve farming as per the importance assigned by the male and female counterparts separately. The results are presented chronologically as per the objectives.

Gender Needs: Shared and prioritised needs identified by women that arise from their common experiences as a gender.

3. RESULTS

As the present research study focused on elucidation of case studies the results are presented in narrative cases described below.

3.1 Case study of Mussel Farming Women's Self Help Groups in Malabar Fisheries Sector

The contribution of women in fisheries sector is substantial, especially in various subsidiary activities of capture fisheries such as processing, value addition, sorting, grading, peeling, trading and aquaculture practices ranging from breeding and rearing of fish to marketing. The coastal fishing communities are almost solely depending on the sea resources for their livelihood and the roles that Self Help Groups of women fisherfolk in the marine fisheries sector mobilized with a suitable micro-enterprise in fisheries and diversified sectors are pivotal for the maintenance and economic prosperity of their families. (Vipinkumar et al, 2001, Vipinkumar and Asokan, 2008, 2011) Microfinance institutions play a vital role in reducing the coastal indebtedness in marine fisheries sector. (Vipinkumar *et al*., 2013) Women households are the real victims of deprivation and destitution. Therefore, any programme for poverty alleviation must aim at improving the living environment of the womenfolk. It is through creating livelihood opportunities Poverty alleviation schemes based on micro-credit system have been implemented in many of the developing countries in recent years. In all developing countries state actions are being reinforced in streamlining poverty alleviation programmes. The institutional formations of various means are also invigorated for initiating schemes of poverty alleviation successfully (Yaron, 1992; Yunus, 1999).

The Self Help Groups (SHGs) organized by women fisherfolk do play a vital role in fisheries sector of maritime states of Indian coastal belts. It is a matter of great concerns that, despite the economic and socio cultural significance of fishing in Kerala state, the women fisherfolk at large are outside the mainstream of the society in the economically disadvantaged category without accruing the benefits from fishing industry. (Kurien, 1994) Malabar areas of Kerala always stand backward and less progressive than the rest of Kerala and about half of the coastline of Kerala state is of

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Malabar. (MCITRA, 2003) But fisherfolk especially women rarely gain the benefits even when there is tremendous consideration for fish production because fisheries development was most often discriminated from the development of fishing community. It would be pertinent to have a look into the group dynamics of the existing Self Help Groups mobilized by the development agencies for empowerment of women fish workers in Malabar fisheries sector. The SHGs', whether is a temporary phenomenon, or would continue on a sustainable basis needs to be analysed and probed. (Fernandez, 1995) The constraints have to be addressed and empowerment should be brought about by adopting suitable economically viable micro enterprises in fisheries and allied sectors by strengthening of these SHGs.

A Self Help Group (SHG) consists of members linked by a common bond like caste, sub-caste, community, place of origin, activity etc. The Group Dynamics of these SHGs refer to the interaction of forces between the members. It is the internal nature of the groups as to how they are formed, what their structures and processes are, how they function and affect the individual members and the organization (Lewin *et al.* 1960). In an intensive study of Group Dynamics, Pfeiffer and Jones (1972) identified the Group Dynamics factors as to how the group is organised, the manner in which the group is led, the amount of training in membership and leadership skills, the tasks given to the groups, its prior history of success or failure etc. In a detailed study of Group Dynamics, Hersey and Blanchard (1995) gave emphasis on helping and hindering roles individuals play in groups such as establishing, aggressive, persuading, manipulative, committing, dependent, attending and avoidance.

This case study in Malabar essentially focused on the major objective of assessing the Group Dynamics of the SHGs of women fisherfolk and identifying the important dimensions contributing to their effectiveness and assessing the influence of personal and socio psychological characteristics on Group Dynamics. The major stress on the project was popularization of molluscan culture technologies in the coastal belts of potential maritime locations in Malabar and Karnataka in consultation with NGOs and State Govt. Departments though mobilised Self Help Groups. The initial focus was given on dissemination of mussel culture technology in the coastal belts of potential maritime locations in Malabar in consultation with NGOs and State Govt. Departments though mobilised Self Help Groups & evaluation of consequences of adoption of Mussel culture technology as an appropriate micro enterprise. A micro-enterprise is an activity which requires less capital, less manpower, local raw materials and local market. (Vedachalam, 1998) The assessment of Group Dynamics Effectiveness of SHGs was done with a standardized protocol developed with twelve identified sub-dimensions such as Participation, Influence & styles of influence, Decision making procedures, Task functions, Maintenance Functions, Group Atmosphere, Membership, Feelings, Norms, Empathy, Interpersonal Trust and Achievements of SHG.

The practical dissemination of bivalve farming technologies in the coastal belts in Malabar coasts in Kadalundy areas of Vallikkunnu panchayat in Malappuram district by training 62 women fisherfolk with the Community Development Scheme (CDS) of the panchayat. The technical training was imparted by the CMFRI officials (Photograph 6 & 7). Mobilised 12 SHGs of women of 60 members through CDS of the panchayat with loan amount worth Rs 1,25,000/- and subsidy of Rs 50,000/- for mussel culture in Kadalundy estuaries. Tables on sources of fund (Table 2) Interest Cost (Table 3), Bank Loan Breakup (Table 4), Variable Cost (Table 5), Cash In flow Statement (Table 6), Profit & Loss Account (Table 7) and Balance Sheet (Table 8) are the speculated tables prepared by the micro enterprise consultant looking after the mussel farming women SHGs of the Community Development Scheme of the panchayat for mussel culture enterprise maintained along with documents of SHGs.

Table 2
Source of Fund

Sl.No	Item	Amount in Rs
1	Beneficiary contribution	6,250
2	Bank loan	1,18,750
3	Total	1,25,000

Table 3
Interest Cost

Sl.No	Particulars	Amount in Rs
1	Total Bank Loan	1.18.750
2	Amount in which interest is charged	68.750
	Subsidy	50.000

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Table 4
Bank Loan Breakup

Sl.No	Particulars	Amount in Rs
1	Amount in which interest is charged	68,750
2	Bank loan payment duration	5 yrs
3	Bank loan interest	12%
4	Loan principal amount repayment	13,750

Table 5
Variable Cost speculated over the years

Particulars	I st year	II nd year	III rd year	IVth year	V th year
Row material	72000	75600	79380	83349	87516
Transportation charge	2000	2100	2205	2315	2430
Total variable cost	74000	77700	81585	85664	89946
Fixed cost Man power	120000	120000	120000	120000	120000
Administration	500	700	900	1100	1300
Sales labour	10000	11000	12100	13310	14641
Interest	8250	6600	4950	3300	1650
Depreciation table	7200	5760	4600	3680	2952
Miscellaneous (Writer)	400	400	400	400	400
Total fixed cost	146350	144460	142950	141790	140945
Total variable cost Total fixed cost	220350	222160	224535	2274504	230891
B Sales revenue Mussel Shells	235147 10000	246904 10500	259249 11025	272211 11576	285821 12154
Total revenue	245147	257404	270274	283787	307075
PROFIT					
A-B	24797	35244	45739	56333	76184
DSCR	1.5	2.05	2.7	3.4	5.05

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Table 6
Cash in flow Statement

Cash flow statement	0 year	I st year	II nd year	III rd year	IV th year	V th year
Own fund	6250					
Subsidy	50000					
Loan	68750					
Add DSPN table		7200	5760	4600	3680	2952
Add preliminary cost		400	400	400	400	400
Profit		24797	35244	45739	56333	76184
Total	125000	32397	41404	50739	60413	79536
Cash out flow						
Fixed asset	36000					
Preliminary cost	2000					
Working capital	87000					
Repayment of loan		13750	13750	13750	13750	13750
Cash available		18647	27654	36989	46663	65786
Opening balance		18647	46301	83290	129953	
Net cash available		18647	46301	83290	129953	195739

Table 7
Profit & Loss Account

Particulars	I st year	II nd year	III rd year	IV th year	V th year
Sales revenue	245147	247404	270274	283787	307075
Total variable cost	74000	77700	81585	85664	89946
Total fixed cost	146350	144460	142950	141790	140945
Net Profit	24797	25244	45739	56333	761184

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Table 8
Balance Sheet

Description	0 year	I st year	II nd year	III rd year	IV th year	V th year
Liability Own fund	6250	6250	6250	6250	6250	6250
Subsidy	50000	50000	50000	50000	50000	50000
Loan	68750	55000	41250	27500	13750	
Reserve		24797	60041	105780	162113	238297
Total	125000	136047	157541	189530	232113	294547
Asset Fixed asset	36000	28800	23040	18440	14760	
Preliminary expenses	2000	1600	1200	800	400	
Working capital	87000	87000	87000	87000	87000	87000
Written down value						11808
Cash balance		18647	46301	83290	129953	195739
Total asset	125000	136047	157541	189530	232113	294547

3.2. Results of data collection and analysis

Though the above tables were the speculated computation of economics of mussel culture in a typically ideal set up without constraints, by the micro enterprise consultants of the Community Development Scheme (CDS) of *Kudumbashree* unit of Vallikkunnu panchayats, the present research study undertaken in the first year of implementation of the mussel culture expeditions of women SHGs brought out commendable significant results. The harvest results in the first year gave a B.C ration of 3.5 : 1 on an average. (Photographs 8,9,10) : Development and modification of tools for data collection of molluscan culture technologies in the potential maritime locations in Malabar were systematically undertaken as a part of the study. The assessment of the dynamics of SHGs with standardized protocols developed and in consultation with NGOs and State Govt. department. The Personal & Socio Psychological Characteristics selected for the study included Age, Education, Annual income, Occupation, Socio-economic status, Extension orientation, Scientific orientation, Mass media participation, Social participation, Cosmo-politeness, Knowledge. Attitude towards SHG, Attitude towards Intervening agency, Attitude towards other members, Information source use pattern etc. Other Parameters of SHG functioning include Structure, Meetings, Attendance, Savings, Credit, Interest, Repayment, Bylaw rules, Action, Administration,& Registers. The major registers are Membership Register, Minutes Book, Weekly Activity Register, Savings Register, Consolidating Register, Credit Register, Credit Receipt Book, Pass Book, Docket sheet representing the activities at a glance. Selected 12 SHGs of the present study and locations and GDEI score obtained after data analysis are shown in Table 9.

Table 9
Selected SHGs and locations

Sl.No	Name of SHG	No. of members	Location	GDEI Score
1.	Nila	5	Vallikkunnu, Hirosnagar	0.65
2.	Puthuma	5	Vallikkunnu, Hirosnagar	0.78
3.	Jalamythri	5	Vallikkunnu, Hirosnagar	0.67
4.	Theeram	5	Vallikkunnu, Hirosnagar	0.77

5.	Olam	5	Vallikkunnu, Hirosnagar	0.78
6.	Soft	5	Vallikkunnu, Hirosnagar	0.68
7.	Chippy	5	Vallikkunnu, Hirosnagar	0.79
8.	Ganga	5	Vallikkunnu, Hirosnagar	0.70
9.	Keerthy	5	Vallikkunnu, Hirosnagar	0.71
10.	Kanakam	5	Vallikkunnu, Hirosnagar	0.69
11.	Muthuchippy	5	Kadalundy Nagaram	0.81
12.	Sagararani	5	Kadalundy Nagaram	0.81

The quantified values in percentages of Personal and psychological characteristics are presented in Table 10 and is quite observable that credit orientation was the highest among the identified independent variables.

Table 10

Quantified values of Personal and psychological characteristics

Sl. No	Variable	Quantified value in Per cent
1	Credit Orientation	71.5 %
2	Economic Motivation	66.0 %
3	Scientific Orientation	59.5 %
4	Risk Orientation	61.0 %
5	Socio economic status	46.5 %
6	Social Participation	78.0 %
7	Extension Orientation	59.5 %
8	Mass media participation	79.0 %
9	Cosmopoliteness	67.0 %

The Simple Correlation analysis of the sub-dimensions is presented in Table 11 and it was noticed that Achievement of SHGs was the most important dimension followed by Participation and Group Atmosphere.

Table 11

Simple Correlation analysis of sub-dimensions with GDEI

Sl. No	Variable	Quantified value in Per cent
1	Participation	0.947**
2	Influence and Styles of influence	0.938**
3	Decision making procedures	0.919**
4	Task functions	0.907**
5	Maintenance functions	0.913**
6	Group atmosphere	0.945**
7	Membership	0.874**
8	Feelings	0.879**
9	Norms	0.884**
10	Empathy	0.869**
11	Interpersonal trust	0.918**
12	Achievements of SHG	0.949**

** Significant at 1 % level of significance

The results of the Simple Correlation analysis of the personal and socio-psychological characteristics to assess the degree of association with the depended variable Group Dynamics Effectiveness (GDE) are presented in Table 12. It was observed that the parameters like Age, Occupation, Fishing Experience etc do not have any influence on GDE and all other variables have perfect positive correlation.

Table 12
Relationship of personal and socio-psychological characteristics with GDEI

Variable	Characteristic	Correlation Coefficient
1	Age	0.087
2	Education	0.310**
3	Occupation	0.058
4	Annual income	0.503**
5	Farm household size	0.508**
6	Fishing experience	0.147
7	Socio-economic status	0.871**
8	Extension orientation	0.840**
9	Scientific orientation	0.813**
10	Mass media participation	0.479**
11	Social participation	0.687**
12	Cosmopoliteness	0.678**
13	Knowledge	0.767**
14	Attitude towards SHG	0.820**
15	Attitude towards intervening agency	0.791**
16	Attitude towards other members	0.782**
17	Information source use pattern	0.847**

3.3. Gender perspectives of bivalve farming Self Help Groups

The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to bivalve culture were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed between the villages. Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is the timely availability of spat. In case of participation and need, both men and women share almost the same opinion (Sahoo *et al*, 2009). Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in mussel/oyster culture, participation in various activities of bivalve farming, gender needs and decision making in various stages. The typology access to resources in bivalve farming in gender response such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately for male and female respondents.

The gender response in participation in various activities in mussel farming such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female. The male dominating operations of bivalve farming were after care, arranging bamboo poles and ropes, seeding nets, canoeing to the sites, harvesting, hiring canoes to estuary, mussel spat collection, post harvest operation, raft construction, seeding rate and seeding, site selection, transport to shore and tying the seeded ropes to the raft which are labour intensive as per the responses of both male and female. But the female dominating activities are record keeping, shell disposal, marketing of live mussel, shucked mussel, meat shucking etc.

The extent of decision making in various activities concerned with mussel farming as per the response of male and female separately is presented in Table 13. Decision making aspect of fishermen is of paramount significance with regard to marine fisheries sector in the Indian context (Srinath, 1990). The gender response in decision making in various activities in bivalve farming such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female are shown in the table. It is interesting to note that, the decision making aspect on the various phases of bivalve farming being accomplished by 'male alone' in most of the activities as per the response of male and female without much difference. But the decision making of the activities like accounting and record keeping, institutional credit and meat shucking etc. were equally shared by male and female. It was observed that, decision making for marketing was a female dominating activity by majority's perception as per the response of both male and female. The results indicated the decision making capability of male and female respondents of the selected households independently being performed in various phases of mussel farming in Vallikkunnu panchayat. (Photographs 11,12,13 and 14)

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Table 13
Decision making in various phases of bivalve farming (n = 120)

Decision making in Activity Name	Female Alone		M<F		M=F		M>F		Male Alone	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Accounting and Record Keeping	26.2	25.11	11.9	3.5	25.8	30.14	18.9	23.75	17.2	17.5
After Care /Maintenance	10	7.1	18.22	8.13	26.58	26.8	20.1	27.86	25.1	30.11
Arranging Bamboo Poles	0	0	24.5	3.5	1.5	6.15	20	34.25	54	56.1
Arranging Ropes	3	1.5	20.47	4.67	15.25	5.5	24.99	40.11	36.29	48.22
Arranging Seeding Nets	2.32	2.1	23.73	5.12	9.22	5.43	24.11	41.15	40.62	46.2
Harvesting Time	22.5	23.38	1.5	0.5	27	21.89	20.5	20.9	28.5	33.33
Hiring Canoes To Estuary/Sea	1	1.5	20.5	3	0.5	2.1	22	29.28	56	64.12
Institutional Credit	25	21.1	2.1	2.3	45.13	24.16	15.4	17.23	12.37	35.21
Marketing	20.61	26	20	11	25.15	17	15.06	25.5	19.18	20.5
Meat Shucking	24.34	23.1	16.23	11.06	25.07	26.03	15.68	22.22	18.68	17.59
Mussel Spat Collection	24	25.18	0	0	5.5	4.48	18.1	10.75	52.4	59.59
Non-Institutional Credit	20.01	22.89	3.98	7.46	34.99	19.4	26	17.41	15.02	32.84
Post Harvest Operation	20.96	21.28	2.98	1	28.84	15.21	22.82	25.01	24.4	37.5
Raft Construction	1	1	18.11	4	9.23	4.5	27.44	40	44.22	50.5
Seeding Rate and Seeding	1	2	24.12	5.5	12.56	11.5	27.14	41.5	35.18	39.5
Site Selection	24	23.38	2	0	5.5	3.98	14	9.45	54.5	63.19
Tying the Seeded Ropes to the Raft	0.5	3.5	39.65	15.5	11.05	10.5	8.59	27	40.21	42.11
Total	14.10	14.38	14.11	5.30	18.17	13.81	20.05	26.19	33.76	40.73

In response to the gender needs in various activities concerned with bivalve farming as per the importance assigned by the male and female counterparts separately is presented in Table 14. With regard to the gender needs, the most important need area expressed by both male and female respondents was training and marketing. As mussel and oyster are highly vulnerable for perishability, marketing of the products is the key for the success of the dynamics of these SHGs. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results. Next important need was 'property right'. Both male and female respondents more or less equally assigned 'safeguarding against unfair transactions' as important category of need area.

Table 14
Gender needs in activities of mussel culture (n=120)

Need Area	Important		Less Important		Most Important	
	Female	Male	Female	Male	Female	Male
Access to Extension Services	43.32	46.24	1.9	2.02	54.78	51.74
Availability of Quality Seeds	20	18.4	6.5	4.98	73.5	76.62
Credit	50.5	60	6	4.1	43.5	35.9

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Exposure Visits	51.5	49.62	2.5	3.28	46	47.1
Farm Management Practices	4	3.47	7	6.97	89	89.56
Marketing	39	39.8		2	61	58.2
Packaging and Transport	17	17.1	9.54	10.78	73.46	72.12
Property right	18	11			82	89.05
Safeguard against Unfair Transactions	81.01	81.01	3.98	5.89	15.01	13.1
Social Support	35.5	32.84	0.5	1	64	66.16
Support From Counterpart	50.35	51	2.5		47.15	49
Timely Availability of Seeds(Quantity)	8	1	0	0	92	99
Training in Farm Management	47.7	45	0.3	3.5	52	51.5
Training in marketing	3	2.08	0.5		96.5	98.02
Training in Mussel Farming Technology	13	10.95	1	1	86	88.05
Training in Packaging	12	7.47	18	20.88	70	71.65
Training in Value Addition	11	12.36	6	2.27	83	85.37
Total	29.63	28.47	4.53	5.02	66.33	67.00

General Constraints of Women fisherfolk

The constraints in general as well as those faced by the women fisherfolk as members of SHG, as per their order of importance in the perception of respondents in Malabar are presented in table 4. Rather than the general constraints such as poor living conditions, illiteracy, unemployment etc, more stress was given on the constraints faced by the SHGs' as it is pertinent for the present study. Marketing aspect was perceived to be the biggest constraint of the SHGs' rather than procedural hurdles of preparing minutes, reports, meetings, banking etc. From these priorities and constraints it is obvious that it is high time for diversification of micro enterprise in additional to fishery based ones in these SHGs' for sustenance. Many SHGs of women fisherfolk have already diversified in these enterprises in Malabar fisheries sector.

4. DISCUSSION

Valid experiences and exquisite observations already indicated that for a group to be developed as an SHG, it requires a period of at least 36 months and it is a hectic process. It has to pass through various phases such as Formation phase, Stabilisation phase and Self Helping phase. These SHGs promote a cooperative and participative culture among the members, which ensures the empowerment culture of the Self Helping phase. The loan sanctioning, utilisation, accounts maintenance and timely repayment of loans etc. are all systematically accomplished with proper maintenance of the documented records by the group members. This ascertains the fulfillment of norms and standards of the SHG leading to economic empowerment of the members. The major expenditure required for bivalve farming is for the materials such as bamboo, nylon rope, coir, cloth, seed, etc. and labour costs essentially cover construction, seeding, harvesting etc. The BC Ratio of SHGs was found as substantially good which proves the profitability of mussel farming in the first crop itself and since in the subsequent years, material costs such as those of bamboo, rope, cloth and labour cost in construction etc. are negligible, this ensures reasonable profit and adoption of mussel farming enterprise bringing about economic empowerment of rural women through organised Self Help Groups.

Mussel farming is achieving considerable significance because of its profitability. It is quite interesting to proclaim in the near future that mussel culture is being fully grown up to possess the potential to be known as an exclusive women based independent enterprise in west coasts. It would be vital to look up on the gender issues in the selection of suitable sites and various operations fulfilling the essential parameters for undertaking mussel culture trials. But it is inevitable to take care of the selection of suitable sites fulfilling the essential parameters for undertaking mussel culture trials. It would be pertinent to have study on the effect of coir retting zones on growth and attachment of mussel seeds to the strings, which often found to be not suitable by experiences and observations. Laboratory experiments should be widened to study the effect of coir retting zones on growth of mussel. Export potential of mussel can be promoted through value addition experiments on depuration plants in filtered seawater. Organised fishermen's cooperatives can play a vital in various stages of seeding, harvesting, sorting, grading, packing, marketing with an intention of export potential. As mussel seed availability is a major constraint, efforts should be initiated for widening the mussel seed production technologies developed by CMFRI on a larger scale.

The Consumer chain of the programme

The striking consumer chain includes those people who like mussel consumption are the major consumers of this venture, Hotels, Restaurants, Fast food corners, Mussel sellers of east Malabar and other districts, Mussel pickle production units/ companies, Seasonal snacks sellers in road side, Nearby inhabitants of the enterprise, Handicraft manufacturers, Organic manure powder manufacturers. Calcium carbonate producing companies.

The Monitoring activity is performed by Kudumbashree District Mission co-ordinator, Bank Managers, Grampanchayat President of Vallikkunnu, CDS President of Vallikkunnu, Fisheries Co-ordinator, M.E. Convener, ADS Administrative Council, Member Secretary, Ward Member, Representing Ayalkoottam, Micro Enterprise Consultant who speculates the entire economic aspects before the implementation.

Expectations of women SHG enterprise of mussel farming

- Poverty Alleviation & economic sustainability of 5 families/ SHG
- Local availability of edible mussel & Local Self Sufficiency of Edible products
- Agricultural growth through Organic manure processing units
- Waste disposal through diversity of products
- Different uses of mussel becomes known in the locality
- Low cost of production and moderate rate of selling make satisfied customers.
- Attract consumers of other states and districts to the enterprise & motivates other enterprises & Women get attracted towards these enterprises.
- Calcium carbonate producing units get continuous availability of raw materials.
- Bone meal manufacturing units get mussel remnants for agricultural products.
- Through women empowerment and economic and social upliftment, the local economic development of Vallikkunnu grampanchayat and in turn Kerala state in a broader sense. (Photographs 15 & 16)

Other Outputs of the study in Malabar

The present study expedition in Malabar brought out a couple of national and international papers and participation in international symposium on gender held along with Indian Fisheries & Aquaculture Forum. A Training Manual on Mussel farming (Malayalam), Calicut Research Centre of CMFRI, also was brought out for field level training programmes. A movie entitled 'Awakening Saga of Women SHGs in Mussel Farming in Kerala': projected in Gender Symposium along with Indian Fisheries & Aquaculture Forum, Lucknow. Another movie entitled "Success story of Women's Self Help Groups in Mussel farming in Kadalundi' also was produced in 3 languages. (Photographs 17 & 18)

Due to low salinity during monsoon, mussel has to be harvested before the raining season and was successfully undertaken in the SHGs and breakthrough harvest results was noticed due the high market demand of the product up to 5 Rs per piece of mussel and upto Rs 250 per kg of meat. The computation of harvest results, economic analysis, estimation of socio-psychological characteristics and cost & yield dynamics were undertaken in the SHGs and brought out a BC ratio of 3.5:1 on an average. The male counterparts of the SHG members also took a lead role in harvest operations and labour intensive operations in various phases of mussel culture trials. The harvest results of mussel culture by the women mobilised SHGs had great expectations on SHG enterprise of mussel farming as a major means of poverty alleviation as each SHG in turn ensures economic sustainability of 5 families. The local availability of green mussel and local self sufficiency of edible mussel products of diversified uses with low cost of production and moderate selling rate make satisfied customers in turn attracting consumers of other states and districts to the enterprise which motivates other enterprises of *Kudumbashree* so that women get attracted towards these enterprises. Ultimately through gender mainstreaming and women empowerment and socio-economic upliftment through the mobilised women SHG, the local economic development of Vallikkunnu grampanchayat gets improved which in turn leads to radical development of fishers of Kerala state in a broader sense. Because poverty can only be eradicated by mobilizing the poor to solve their actual problems in the form of organised SHGs. Success cases of SHG mobilization have been elucidated and documented which can be used as case models for promoting group action on a sustainable basis so that a history is being generated in the paradigm of economic empowerment of women which in turn leads to the local economic development of the state.

5. CONCLUSION

It is a truth that, no nation can ignore fifty per cent of its population and bring in social change and economic prosperity. To ensure rapid economic development, removal of gender imbalances should be established as a priority. This would mobilize the remaining fifty percent of the country's human resources and would result in the smooth movement of the economic wheel. National policies should be resolute in tackling this issue and local bodies should ensure the implementation of these policies at the community level. (Shyam *et al*, 2011). There is immense need to create better opportunities for women in coastal fishing communities to enhance their social and economic role and enable them to participate in development efforts, rehabilitation and conservation of the coastal and aquatic environment. Location-specific and need based training programmes for fisherwomen should be organized to enhance the awareness and technical know-how enabling them to start self-generating gainful employment ventures in aquaculture and post-harvest sector of fisheries. The elegant special features of fisheries and aquaculture make it necessary to link microfinance to appropriate technology development and transfer to women clients. Both capture fisheries and aquaculture requires upgraded vocational training programmes and technical advice crucial for the success of women's micro enterprises. CMFRI has developed a technology for the farming of mussels in the open sea and protected bays. The technology is simple and cost effective and has been widely adopted by the fisherfolk of Kerala and Karnataka (Pillai, 2000). Several women SHGs in the Malappuram district of Northern Kerala have successfully tailored the unique venture and proved profitable. Similarly adoption and expansion of ornamental fish culture can earn surplus high income both in rural and urban centres. Women could significantly contribute to this sector if trained and oriented in the right direction. Opportunities for women in fisheries could be enlarged in the field of integrated aquaculture, agribusiness consortia fishery estates, marine products development management of fishery infrastructure marketing and export as well as in research and technology development. Freshwater pearl culture is fast picking up as commercial

venture and there are moves to integrate it with the carp culture to generate additional revenue to the farmer. Women could take up pearl culture as a prominent and productive income-earning venture on account of the vast unutilized potential. A phenomenal promotion of diversified value added products not only accelerate earnings in exports, but also provide a multiplier effect on employment front especially for weaker sections and women folk. The exalted efforts taken by government and non-governmental agencies to organise fisherwomen into self-help groups and involving them in the preparation of value added products and marketing has brought out resplendent and encouraging results.

Another subtle and supreme strategy to cope with the local demand patterns of quality seeds of fish/shrimps is the development of backyard hatcheries which could be taken up by women. House-based ventures are more preferred by women and found suitable to their present social fabric. Appropriate training programmes, including awesome possible linkages of necessary credit facilities in liaison with scientific institutes and formal financial institutions respectively should be imparted to the primary stakeholders are needed. Quantifying ergonomics of the women involved in aquaculture and allied activities by generating data and documenting the gender literature are important. For determining the economic contribution of women fisherfolk in order to enhance visibility, there is a need for the sensitization of development organizations and staff towards fisherwomen's economic and financial needs. Similarly improving the socioeconomic condition of women fisherfolk in terms of the pertinent areas of maternal health and nutrition care are important. An astounding mobilization of Self Help Groups, superb setting up of Mahila Rural Co-operative banks, Women cell and a triumphant collaboration and networking with NGOs etc are to be worked out by using the practical strategy developed in the case studies as a practical manual. Promoting "men and women partnership firms" instead of exclusively women-oriented enterprises is another august practical strategy. The case studies explored showed that husband-wife enterprises with one or two helpers in fish processing/marketing in fishery related activities yields better prospects. Another inference to be drawn from the selected cases on bivalve farming narrated in the present study is that it is achieving spectacular significance because of its profitability and it is quite interesting to proclaim in the near future that mussel culture is being fully grown up to possess the potential to be known as an exclusive women based independent enterprise in west coasts. It would be vital to look up on the gender issues in the selection of suitable sites and various operations fulfilling the essential parameters for undertaking bivalve culture trials. The unordinary export potential of bivalves can be promoted through value addition experiments on depuration plants in filtered seawater. The brilliantly organised fishermen's cooperatives can play a vital in various stages of seeding, harvesting, sorting, grading, packing, marketing with an intention of export potential. As mussel seed availability is a major constraint, structured and systematic efforts should be initiated for widening the mussel seed production technologies developed by CMFRI on a larger scale. As gender mainstreaming approach advances gender equality and equity in the society, a unique integration of the gender perspective in mariculture research and technology development in marine fisheries sector also is an essential requisite.

SUMMARY OF RESEARCH

1. A narrative diagnostic study was undertaken on gender perspective and women empowerment through mobilised Self Help Groups in Malabar areas of Kerala emphasizing on the gender equity and equality stressed in the Indian context by elucidating success cases in Vallikkunnu panchayats of Malappuram district. Policy and programs for bivalve farming in Southern India also have been explored with special reference to mussel culture sector based on primary and secondary data gathering methods focusing attention on women initiative as SHGs. The effectiveness of Group Dynamics of the trained SHGs in mussel culture has been assessed with standardized protocols developed as an Index and the interrelationships between the variables and economic achievements of SHGs were assessed. Practical cases on mussel culture technologies disseminated by Central Marine Fisheries Research Institute with involvement of women were illustriously narrated which can be used as case model and practical manual for mobilizing SHGs in any key areas.
2. The paper also highlights the glimpses of gender perspectives such as gender participation, access and control over resources and gender need analysis of male and female counterparts of the families in mussel culture stressing the pertinent issues and challenges in the sector and the future direction to proceed further. For ensuring a rapid economic development, removal of gender imbalances should be established as a priority and this would mobilize the remaining fifty percent of the country's human resources and would result in the smooth movement of the economic wheel. Integrating gender perspective in bivalve farming research and technology development is inevitable because the gender mainstreaming approach advances gender equality and equity in the society. The case studies explored the extent of empowerment brought out in different dimensions including social, political, spiritual and economic strength through Self Help Group mobilization and the suitability of appropriate and versatile micro enterprises for the betterment of livelihood parameters in the marine fisheries sector of the country.

FUTURE ISSUES

A tip of the iceberg of poverty eradication in marine fisheries sector was attempted in this study on gender perspective of women SHGs in Mussel farming in Malabar. The scale of Group Dynamics with 12 dimensions can be used for similar future research in fisheries and allied sectors for different types of community based groups such as youth, labourers, extension personnel etc. The lacunae identified in GDEI give feedback for the possible improvement in SHG functioning by taking care of the dimensions contributing their effectiveness. The success case studies elucidated can be adopted as a case model for mobilizing SHGs in other key areas like Agriculture, Forestry, Floriculture, Agro based industries, Watershed development etc. The strategy developed for mobilizing SHG can be used as a practical manual for organizing and managing SHGs' on any area on a sustainable basis. The future researchers can think about bringing solid and striking social action programmes for sensitization on crucial issues like women fisherfolk's rights and marketing channels including policies and other interventions to ensure equality through gender mainstreaming in mariculture and marine fisheries sector. To get a distinct and dazzling outlook of the scenario of gender mainstreaming and Self Help Group Dynamics of women in fisheries sector, and exhaustive research with larger sample and wider area involving the fisherfolk of other fishery based

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micro enterprises would be of ample scope. Similarly it is quite necessary for integrating gender perspective in mussel mariculture extension also because women are the important stakeholders of our aquaculture development process and our extension system hardly targets the women folk for technological empowerment. The identified constraints of SHGs and the preference ranking of micro enterprises give an idea on the majestic appropriateness of the location specific venture in fisheries and diversified sectors for economic empowerment of SHGs' of women fisherfolk. The identified interrelationships between the variables can act as catalytic points for promoting wondrous group empowerment, which might give useful insight on the plausibility of using the exemplary group dynamics network for strengthening the magnificent functioning of women's SHGs'. Ultimately, poverty can only be eradicated by mobilizing women to solve their actual problems through Self Help Groups.

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CONTENT

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Photograph 1
Harvest of the mussel by the SHG members

Photogpah 2
The harvested mussel by SHGs in the mussel culture site

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Photgraph 3
Survey on social dimension of mussel culture SHGs in Kadalundi

Photograph 4
Women members of SHGs at the site of Mussel farming

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Photograph 5
Muthuchippy SHG members at Kadalundy Nagaram

Photograph 6
Mussel seeding performed by women SHG members in training programme

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Photograph 7
Training programme by CMFRI technical experts on mussel culture

Photograph 8
Project leader Dr. P.K Asokan with technical hands and SHG Leader

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Photograph 9
SHG leader at the mussel culture site

Photograph 10
Monitoring of the site by the project team

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Photograph 11
Harvest undertaken by men counterparts of SHG members

Photograph 12
Men counterparts of SHG members active at the site

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Photograph 13
Post Harvest operations of Mussel by SHG members

Photograph 14
Gender equity in post harvest operations in mussel farming in Kadalundi

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Photograph 15
CDS Leaders with SHG members in Vallikkunnu panchayat

Photograph 16
Members of successful SHGs: Muthuchippy and Sagara Rani

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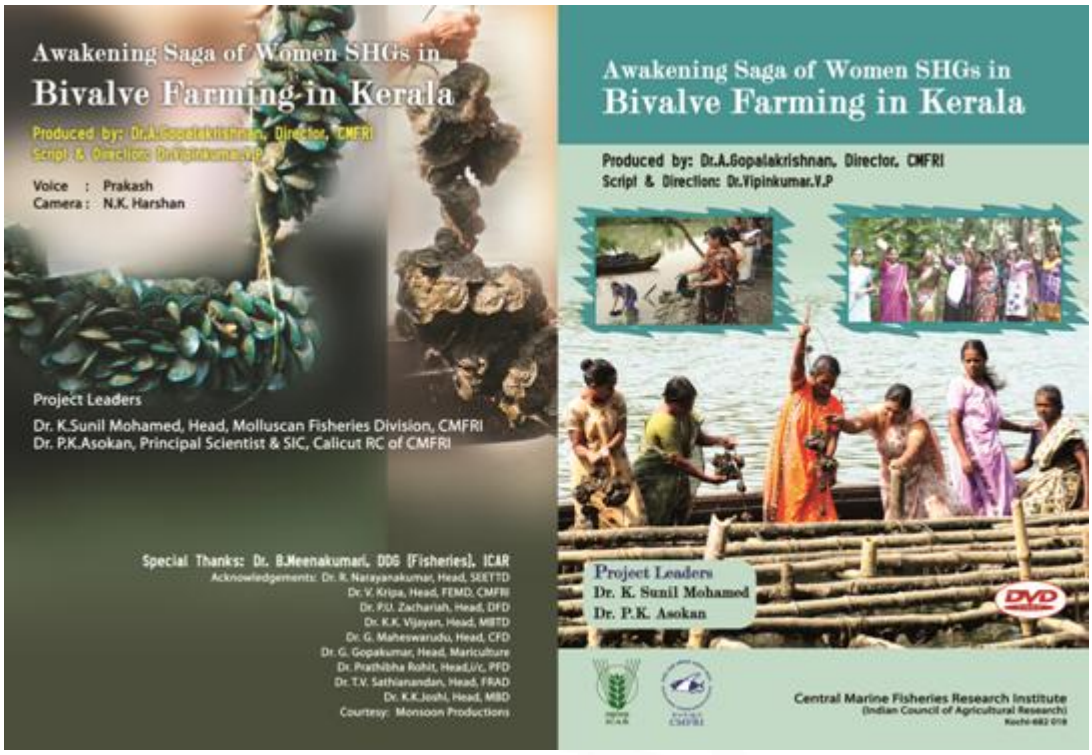

Photograph 17

Movie projected in International Gender Symposium at Lukhnow

Photograph 18
Movie released in trilingual version on success story of mussel culture in Kadalundi