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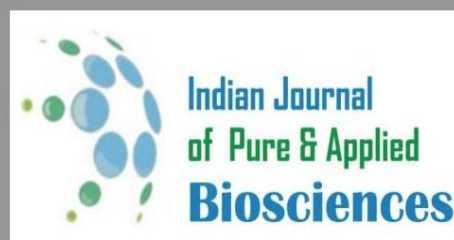
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## Mainstreaming Gender in the Context of Seaweed Farming SHGs in Ramanathapuram: A Pragmatic Evaluation

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### ABSTRACT

*A pragmatic examination on the impact of women SHGs in gender mainstreaming was embarked on the 10 seaweed farming SHG units operating at Ramanathapuram district in Tamil Nadu state. An explorative assessment on extent of empowerment, performance level, gender characteristics and economic feasibility analysis was carried out based on socio-economic surveys and personal interviews using pre-tested and structured data gathering protocols with standardized scales and indices. Empowerment Index was quantified based on 8 relevant dimensions constituting it. The male and female counterparts of the families were separately interviewed to evaluate the gender mainstreaming aspects in terms of equity and equality to access to resources, participation profile, decision making aspects, gender need analysis etc. Though majority of activities are male dominated, the female counterparts of the households also have committed role in site selection, seeding, drying, packing etc. The Scales of 'Performance Assessment' and 'Empowerment Index' developed for this study have upright prospective for future use in other key areas on a sustainable basis. Voids identified in Empowerment Index computation give adequate feedback to authorities to proceed in the accurate direction and to follow apposite changes in strategies of the microenterprise. The gender dimension analysis on mainstreaming aspect gives sensitization on crucial issues like women fisherfolk's rights and marketing channels for policies and other interventions on gender. The identified interrelationships between the variables act as catalytic points for group action and empowerment on a maintainable basis. The indicative economics worked out for the economic feasibility analysis of the SHGs advocates that, the unit takes just one year to break even which shows the cost-effectiveness of the seaweed farming enterprise.*

**Keywords:** Gender mainstreaming, Self Help Group, Empowerment index, Performance level, Economic Feasibility

## INTRODUCTION

The epitome of ‘Gender Mainstreaming’ essentially emphasizes on gauging the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a subterfuge for making women’s and men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally and inequality is not perpetuated. Lombardo (2005) of European Union (EU) constitution has adopted an “integrating” rather than an “agenda-setting” approaching to gender mainstreaming. Five pointers of application of mainstreaming will serve as a reference point for exploring how it has been applied in EU constitutional convention: a broader concept of gender equality, the incorporation of a gender perspective in to mainstream, equal representation of women, the prioritization of gender policy objectives, and a shift in institutional and organizational culture. Williams *et al.* (1995) traced the sequence of events leading to the involvement of Women in Fisheries program and to the move towards Gender and Fisheries initiatives and some gender issues besetting the fisheries sector highlighted such as poverty, division of household labour, health, access to education and other rights, organizational culture and raising awareness and sharing knowledge. Jacqui (2010) claimed that GM does not end in simply increasing the number of women within a specific institution and is about changing social consciousness, so the effects of a policy for both women and men are truly analyzed before they are implemented. Carolyn (2003) found that GM was established as a stratagem for promoting the achievement of gender equality because of the failure of

previous strategies. The FAO State of Food and Agriculture 2010-11 reports, divulged that, if female farmers had the same access as male farmers to agricultural inputs and services, they could substantially increase the yields on their farms. A World Bank report clinched that reducing gender inequality leads to falling infant and child mortality, improved nutrition, higher economic productivity and faster growth. For the global community, gender equality is also a commitment, embedded in international human rights agreements and in the United Nations Millennium Development Goals. (FAO, 2011).

Mainstreaming the gender dimension is the process of evaluating the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The eventual goal is to achieve gender equality (ECOSOC, 1997). UNESCO (2000) has a three-pronged approach to women's empowerment and gender equality consists of, GM perspective in all policy planning, programming, implementation and evaluation activities; promoting the participation of women at all levels and fields of activity, giving particular attention to women's own priorities and perspectives in redefining both the goals and means of development; and developing specific programs and activities for the benefit of girls and women, particularly those that promote equality, endogenous capacity-building and full citizenship. The ultimate goal is to achieve gender equality and equity which aims to transform the mainstream at all levels to end gender discrimination.

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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 (FAO, 2017, Williams et al., 1995, Charlesworth, 2005, Kelly, 2005). Here in the present study, an attempt was made on the assessment of impact of SHGs in sea weed farming in gender mainstreaming in Ramanathapuram district of in Tamil Nadu state.

### Background of the present context of the study on seaweed farming SHGs

In India, cultivation of seaweed, *Kappaphycus alvarezii* was initially started at Mandapam during 1995–1997 (Eswaran et al., 2016) which was initiated by PepsiCo during 2002 and later taken over by Aqu Agri in 2008 (Krishnan and Narayanakumar, 2010). Many SHG's of women has been formed by the Corporate houses Pepsi, followed by Aqu Agri (Narayanakumar & Krishnan, 2011).

Familiarity and know-how acquired from experimental and field cultivation of *K. alvarezii* in several Indian coastal areas indicate the possibility of large-scale commercial cultivation and a means of additional income generation for the coastal fisherfolk. Commercial cultivation of *K. alvarezii* was started in 2005 along the Tamil

Nadu coast. Now, *K. alvarezii* production is carried out in five coastal districts of Tamil Nadu namely Ramanathapuram, Pudukottai, Thoothukudi, Thanjavur and Kanyakumari.

### MATERIALS AND METHODS

The present study was carried out based on the data gathered from 10 seaweed farming Self Help Groups in Ramanathapuram district. Seaweed farming was adopted first in this district and Ramanathapuram district of Tamil Nadu coast was the major location where seaweed farming and collection are being intensively undertaken in larger scale. The methodology adopted for the study was a pragmatic and sensible combination of extension research and practical extension. With the assistance of State departments, the research team of the Mandapam Regional Centre of Central Marine Fisheries Research Institute (CMFRI) visited the locations once in a month for five times and conducted communication conclaves and interaction programmes for the SHG members involved in seaweed farming. A series of farmer collaboration conclaves were organized for the identified 10 SHGs. The participation profile, decision making, gender need analysis, Economic Feasibility Analysis etc. also were undertaken by interviewing the men and women counterparts of the families of the SHG members. A map showing the locale of the study Ramanathapuram district in Tamil Nadu is presented as Fig 1.

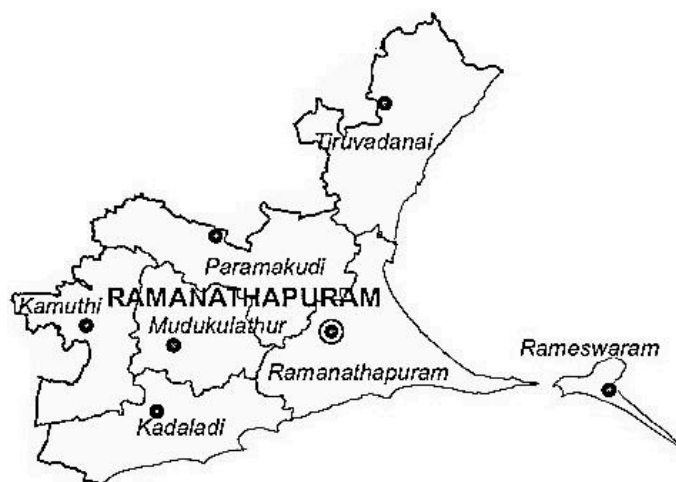


Fig. 1: the Map showing the locale of the study

For assessing the Performance level of SHGs and Empowerment Index, appropriate scales and indices developed for the project with appropriate modifications were used. The Level of Performance (NABARD, 2007, Shalumol, 2015) was assessed by the checklist containing the same dimensions developed by NABARD such as Group size, Type of members, Number of meetings, Timings of meetings, Attendance of members, Participation of members, Savings collection within the group, Amount to be saved, Interest on internal loan, Utilization of savings amount by SHG, Loan recoveries, Maintenance of books, Accumulated savings, Knowledge of the rules of SHG, Education level, Knowledge of Govt. programmes etc. arranged in 3 point continuum. Similarly the Empowerment Index was quantified based on 8 dimensions (Meena et al., 2012) such as Confidence building, Self-esteem, Decision making pattern, Capacity building, Psychological Empowerment, Social Empowerment, Economic Empowerment and Political Empowerment. The extent of empowerment was quantified as the difference between the scores obtained as per the perception of the SHG members before and after joining the SHG. For computing the Empowerment Index, the scores obtained for each dimensions were first made uniform and that was multiplied by the weightages assigned by the judges while relevancy rating for ascertaining the content validity of the scale through scale product method. Each of the dimension of Empowerment Index was computed by the scores of the sub-dimensions coming under the categories of these 8 dimensions. The Empowerment Index and Level of Performance of SHGs were quantified with the standardized interview schedules.

The practical extension management part for the present study consisted of Awareness and Entrepreneurial Capacity

Building (ECB) Training programmes systematically executed and then extension research part concentrated on socio economic surveys with a pre-tested and structured data gathering protocol with standardized scales and indices. Stage by stage video documentation in the various segments of activities of SHG in seaweed farming was done. In the extent of involvement in various stages of entrepreneurial activity of running the seaweed farming units by the members like arranging raw materials, availing extension service, site selection, construction/fabrication of floating raft, seeding, maintenance, harvesting, drying, packing, institutional & non-institutional credit and marketing was computed. The gender mainstreaming (Daly, 2005) to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

## RESULTS AND DISCUSSION

### **Empowerment Index, Level of Performance of SHGs and Extent of Involvement in Entrepreneurial Activity**

The Empowerment Index and Level of Performance of 10 SHGs were quantified with the standardized interview schedules and are presented in Table 1. The mean empowerment index was found to be 82.0, which is high in comparison to other enterprises. Indicator-wise fragmented analysis of the study revealed that the culture empowerment index (94.6), economic empowerment index (94.4) and social empowerment index (92.4) were very high. The political empowerment index (49.4) was found to be very low. The psychological empowerment index was 82.5. Overall assessment of performance of the 10 Self Help Groups on various factors was found to be very good.

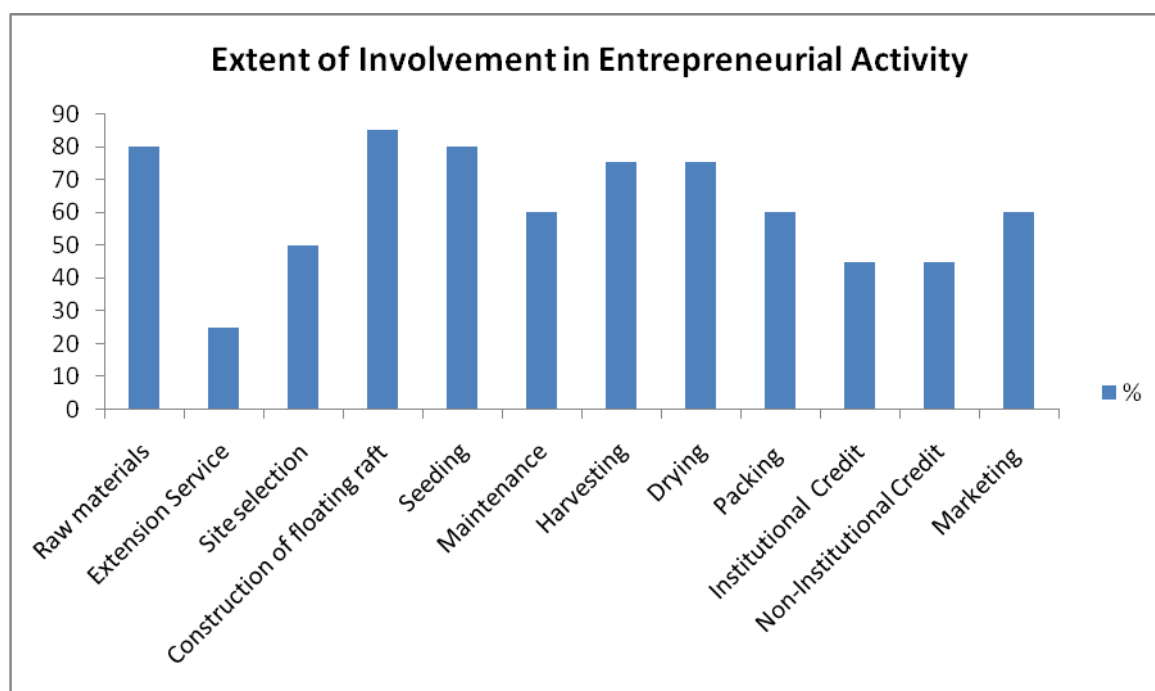
**Table 1: Level of performance and Empowerment Index of selected Self Help Groups**

No	SHG Name & Location	Level of Performance	Empowerment Index
1	Manal Madah, Olaikuda	75.2	0.83
2	Muthumariamman, Sambai	72.4	0.80
3	Kadal Madha, Ariyankundu	62.5	0.70
4	Kadal Pasu, Munaikadu	83.5	0.90
5	Vidivelli, Munaikadu	78.4	0.85
6	Vinayagar, Mangadu	68.3	0.77
7	Ramanathaswami, Sambai	81.3	0.88
8	Kulandai Yesu, Olaikuda	70.6	0.78
9	Saveriyar Michael Andavar, Olaikuda	80.6	0.87
10	Valarpirai, Munaikadu	74.8	0.82

Extent of Involvement in Entrepreneurial Activity by the members like purchase of raw materials, availing extension service, site selection, construction/fabrication of floating raft, seeding, maintenance, harvesting, drying, packing, institutional credit, non-institutional credit and marketing were quantified with structured interview schedule. The gender mainstreaming to assess the equity and equality of men and women counterparts of

the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

The extent of involvement in various phases of the Entrepreneurial Activity was also enumerated and articulated in fig 2. Maximum participation of the members and families was observed during raw material procurement, fabrication of floating rafts and seeding.

**Fig. 2: Extent of involvement in various phases of the Entrepreneurial Activity**

### The assessment of gender perspectives

An evaluation of gender perspectives in terms of gender need and gender role in the seaweed farming units was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to seaweed farming were analyzed. Opinion of men and women in above characteristics was found to be similar without any significant difference. However, differential gender response was observed among SHGs. Significantly, the most laborious operations of seaweed farming such as procuring raw materials, construction of raft, harvesting and marketing of finished products were performed by men. In case of

participation and need, both men and women share almost the same opinion. (Sahoo et al., 2009, Raghavan, 2009, Vipinkumar et al., 2017, 2018) Socio-economic, technological and export support requirement were 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 seaweed farming, participation in various activities of running the seaweed unit, gender needs and decision making in various stages. The typology access to resources in running a sea food kitchen in gender response such as female alone, male <female, male = female, male >female and male is alone indicated separately for male and female respondents. The results on access to resources are presented in table 2.

**Table 2: Access to resources for seaweed culture**

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Raw materials	0	0	0	0	0	0	0	0	100	100	0	0
Extension Service	0	0	0	0	0	0	0	0	100	100	0	0
Site selection	0	0	0	0	0	0	50	50	50	50	0	0
Construction of floating raft	0	0	0	0	0	0	0	0	100	100	0	0
Seeding	0	0	0	0	60	50	0	0	40	50	0	0
Maintenance	0	0	0	0	0	0	20	10	80	90	0	0
Harvesting	0	0	0	0	0	0	0	0	100	100	0	0
Drying	0	0	0	0	80	50	0	0	20	50	0	0
Packing	0	0	0	0	50	50	0	0	50	50	0	0
Institutional Credit	0	0	0	0	0	0	0	0	100	100	0	0
Non-Institutional Credit	0	0	0	0	0	0	0	0	100	100	0	0
Marketing of finished products	0	0	0	0	0	0	0	0	100	100	0	0
Account and Record keeping	0	0	0	0	0	0	0	0	100	100	0	0
<b>TOTAL</b>	0	0	0	0	0	0	0	0	0	0	0	0

It was found that, there was a significant difference on the opinion of men and women in the aspect of access to resources. It was apparent from table that, among the responses of female and male for the items of access to resources, most of the items are dominated by 'male alone' except for seeding, drying and packing role which were being performed by male and female together. The arrangement of raw materials, availing extension services, construction of floating raft, maintenance, harvesting, availing institutional credit, accounting/money transaction, marketing, etc.

were under the control of men. The most important requirement perceived by both men and women were seeding and drying of harvested seaweed.

Similarly the participation profile in various activities concerned with seaweed farming is presented in Table 3. The gender response in participation in various activities in seaweed farming in such as female alone, male <female, male = female, male >female and male alone indicated separately by male and female are presented in the table.

**Table 3: Participation profile in gender perspective**

Activity	Man(Independently)		Men and Women together		Women(Independently)	
	Female	Male	Female	Male	Female	Male
Raw materials	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Site selection	100	100	0	0	0	0
Construction of floating raft	100	100	0	0	0	0
Seeding	50	50	50	50	0	0
Maintenance	100	100	0	0	0	0
Harvesting	100	100	0	0	0	0
Drying	10	10	80	80	10	10
Packing	50	50	50	50	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	100	100	0	0	0	0
Account and Record keeping	50	50	50	50	0	0

It was clear from table 3 that, most of the activities were male dominating operations in seaweed farming, as per the responses of both male and female. But seeding, drying, packing, account and record keeping activities were being performed by both men and women. In the same way, response to the gender needs in

various activities concerned with seaweed farming of male and female separately is presented in Table 4. The gender response in need areas in seaweed farming as per the importance assigned by male and female counterparts are presented in the table.

**Table 4: Gender needs in activities of seaweed culture**

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Raw materials	50	43	50	57	0	0
Extension Service	100	100	0	0	0	0
Site selection	40	40	40	40	20	20
Construction of floating raft	0	0	60	40	40	60
Seeding	0	0	50	50	50	50
Maintenance	0	0	40	50	60	50
Harvesting	0	0	0	0	100	100
Drying	50	50	50	50	0	0
Packing	100	100	0	0	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	30	40	50	30	20	30
Account and Record keeping	100	100	0	0	0	0



With regard to the response to the gender needs, the most important need area expressed by both male and female counterparts included fabrication of floating rafts, seeding, raft maintenance and harvesting. Arrangement of raw materials and marketing of products were the needs in the category of 'more important'. Other needs such as drying, packing, institutional and non-institutional credit, account and record keeping were considered important.

Similarly, the extent of decision making in various activities concerned with seaweed farming as per the response of male and female separately is presented in Table 5. The gender response in decision making in various activities in seaweed farming is such as female alone, male <female, male = female, male >female and male alone indicated separately by male and female are presented in the table.

**Table 5: Decision making in gender perspective in Seaweed culture**

Activity	Man(Independently)		Both Men & Women		Women(Independently)	
	Female	Male	Female	Male	Female	Male
Raw materials	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Site selection	100	100	0	0	0	0
Construction of floating raft	100	100	0	0	0	0
Seeding	20	30	80	70	0	0
Maintenance	100	100	0	0	0	0
Harvesting	100	100	0	0	0	0
Drying	40	30	60	70	0	0
Packing	50	50	50	50	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	100	100	0	0	0	0
Account and Record keeping	100	100	0	0	0	0

It was interesting to note from the table that, the decision making aspect on the various phases of seaweed farming was 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 seeding, drying and packing were equally shared by male and female counterparts.

Overall the study found that majority of activities in seaweed culture was carried out by male. At the same time some of the activities are equally shared by male and female counterparts. Hence male and female

play vital and decisive roles in success of the seaweed farming.

#### **Economic Feasibility Analysis of Seaweed Farming**

The Economic Feasibility Analysis of the seaweed farming units of SHGs also was undertaken by gathering data for the last 3 years on expenditure and returns to project the indicative economics. The average operating cost and average net returns were worked out and the significant components assessed were the Break Even Point and Pay Back Period of these enterprises. The results are presented in table 6.

Table 6: Economic Feasibility Analysis of Seaweed Farming

## Cost Stream

	Fixed Assets	1st year		2 <sup>nd</sup> year		3 <sup>rd</sup> year	
		Quantity Required	Cost per Raft(Rs)	Quantity Required	Cost per Raft (Rs)	Quantity Required	Cost per Raft (Rs)
	3-4" dia hallow bamboos of 12'x 12' for main frame + 4' x 4' for diagonals (without any natural holes, crakes etc.,) @ Rs.5.50 per ft of bamboo	64'	352.00				
	Five-toothed iron anchor of 15 kg each (@ Rs.50 per kg) – one anchor can hold a cluster of 10 rafts	1.5 kg	75.00				
	3mm PP twisted rope for plantation – 20bits of 4.5m each (@ Rs.230 per kg)	420 gm	97.00				
	Cost of HDPE braider pieces (20 pcs x 20 ropes = 400 pcs of 25 cm each) (@ Rs.330 per kg)	165 gm	55.00				
	Raft framing rope 6m x 12 ties per raft i.e., 36mts of 4mm rope(@Rs.230 per kg)	650 gm	150.00				
	Used HDPE fishing net to protect the raft bottom (4m x 4m size) (@ 70 Rs/ kg)	1 kg	70.00				
	2mm rope to tie the HDPE net (28 mts) (@ Rs.230 per kg)	100 gm	23.00				
	Anchoring rope of 10 mm thickness (17m per cluster of 10 rafts) (@ Rs.220 per kg)	100 gm	22.00				
	Raft linking ropes per cluster 10 rafts – 6mm thick – 2 ties x 3m x 9 pairs = 54m length (@ Rs.230 per kg)	100 gm	23.00				
	Raft laying charges	-	33.00				
	<b>Fixed Costs in Rs. (Total initial investment per Raft)</b>		<b>900.00</b>				
	<b>Variable Expenditure</b>						
	Seed material (150 gm x 400 ties @ Rs. 5.00 per Kg)	60 kg	300.00	60 kg	300.00	60 kg	300.00
	Braider twining charges		180.00		180.00		180.00
	Transportation		150.00		150.00		150.00
	Raft maintenance		450.00		450.00		450.00
	Miscellaneous expenses		27.00		30.00		30.00
	<b>Recurring Cost (in Rs.)</b>		<b>1,107.00</b>		<b>1,110.00</b>		<b>1,110.00</b>
	Interest on fixed cost (7%)		63.00		90.00		90.00
	Depreciation		270.00		90.00		90.00
	<b>Total Operating Costs (in Rs.)</b>		<b>1,440.00</b>		<b>1,470.00</b>		<b>1,470.00</b>

**Return Stream**

Annual seaweed production (190 kg/raft)* (Retaining 60 kg for next crop, total seaweed production from 45 rafts; 4 cycles)		23,400 kg		23,400 kg		23,400 kg
35 % of total seaweed production is sold in fresh form		8,190 kg		8,190 kg		8,190 kg
Price of fresh seaweed (Rs. per kg)		5		5		5
Revenue in Rs. (A)		40,950		40,950		40,950
Remaining 65% of total seaweed production is sold in dried form (15,210 kg will give 1,521 kg of dried seaweed)		1,521 kg		1,521 kg		1,521 kg
Price of dried seaweed (Rs. per kg)		35		35		37.50
Revenue in Rs.(B)		53,235		53,235		57,037.50
Gross Revenue in Rs. (A+B)		94,185		94,185		97,987.50
Total cost of production (Rs.) (Rs.1,440 × 45 rafts)		64,800		64,800		64,800
Net income (Rs.) (Gross revenue – Total cost of production)		29,385		29,385		33,187.50

From the table on economic feasibility analysis, it could be observed pragmatically that, the Average Operating cost for the seaweed enterprise was Rs. 66,150/-. The Average Annual Net Return was found to be Rs. 30,652/-. Total Fixed Cost was Rs 40,500/-. The Break Even Point (BEP) = Fixed Asset / (Profit per unit—Variable cost per unit) = 18,080 kg of seaweed (fresh form). The Pay Back Period i.e the years the unit takes to break even = Initial Investment / Net Profit, which was found to be just 1 year indicated the profitability of the seaweed farming enterprise.

**Insinuation and inference from the study**

To put it in a nut shell, a pragmatic evaluation of seaweed producing units efficaciously being undertaken by Self Help Groups of fisherfolk in Ramanathapuram district of the state of Tamil Nadu brought out a couple of valid suppositions. It was understood that, though majority of the operations especially the labour intensive ones are male dominated, the female

counterparts also do have a definite role in site selection, seeding, drying, packing etc. The Scales of 'Performance Assessment' and 'Empowerment Index' developed for this study have good potential for future use in other key areas on a maintainable basis. Lacunae identified in Empowerment Index computation give ample and adequate feedback to authorities to proceed in the right direction. The inferences drawn from the gender dimension analysis on mainstreaming aspect gave ample sensitization on vital and crucial issues like women fisherfolk's rights and marketing channels for policies and other interpolations on gender. It could be insinuated that, an exhaustive research with larger sample and wider area would be of abundant scope. Interrelationships between the variables can act as catalytic points for group action and group empowerment on a sustainable basis. Success case studies expounded and brought out as video on seaweed culture by Mandapam Regional Centre of CMFRI can be used as a

practical guidance manual for marshaling and mobilizing SHGs in similar allied segments on a sustainable basis.

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