Socio-economic Development of WSHGs through Aquaculture Activities in Odisha

Nirupama Panda[1*] and K.B. Dutta[2]

[1]*Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Odisha*
[2]*Sambalpur University, Sambalpur, Odisha*

SUMMARY

The Composite Indices (C.I.) of development in respect of 17 developmental indicators for 32 WSHGs doing aquaculture activities in Keonjhar and Koraput districts of Odisha have been estimated in three dimensions - Economic, Social and Empowerment along with Overall development for the year 2008-09. More than 63% WSHGs have developed to both the stages of High middle (HM) and Low middle (LM) level. The members of the WSHGs were empowered to a higher level (C.I. = 0.38) compared to Economic development (C.I. = 0.57), Social development (C.I. = 0.65) and Overall development (C.I. = 0.66). Overall development was found to be highly associated with Social development (r = 0.88) followed by Economic development (r = 0.66) and Empowerment (r = 0.56) (significant at 1% l.s.). There was a significant poor correlation between Economic Development and Social Development (r = 0.41 (at 5% level of significance)).

Keywords: WSHG, Aquaculture, Development, Statistical evaluation.

1. INTRODUCTION

Aquaculture now plays a multi-disciplinary role and aims at providing food security, generating employment, economic gains, optimum utilization of resources and finally up-liftment of the socio-economic status for those who are directly or indirectly connected with exploitation, production and processing of fish (Ninawe and Diwan 2005). Now-a-days more and more rural women are being associated with aquaculture due to its simplicity in management and production propensity. As per the State Reservoir Policy, 2003 of Odisha Govt., Gram Panchayat (G.P.) ponds are leased out to the women self-help groups (WSHGs) for aquaculture activity i.e. pisciculture. There are 63,292 ponds with an area of 50,309.69 ha. in 6,234 Gram Panchayats in the entire state (Anon 2000-01). The National Bank for Agriculture and Rural Development (NABARD) and other nationalized banks have launched a number of developmental programmes to improve the socio-economic conditions of women in fisheries sector with a focus on providing credit support through WSHGs. Govt. have decided that one of the G.P. ponds shall be handed over to suitable WSHG for taking up pisciculture and G.P. ponds shall be available on long term lease basis (5 years). This will encourage the financial institutions to extend credit. Nearly 5000 tanks have come to WSHGs out of over 15000 G.P. tanks available in the State. The efforts are on at the district level to give more finance to the WSHGs (Anon 2006-07).

As per the BPL survey1997, Koraput district has the highest proportion of families (83.61%) and Keonjhar has 76.96% of families living below poverty line and are having predominance of tribal people (Anon 2007-08). In order to eradicate poverty, both the central government and the state government are at

---

Corresponding author : Nirupama Panda
E-mail address : nirupama.panda @rediffmail.com

constant efforts in implementing a number of developmental programmes in fisheries sector especially in hilly and tribal areas through the formation of WSHGs. Though tremendous progress has been made on formation of a large number of WSHGs and release of financial credit and subsidies to them, there is no indication whether these achievements have brought about any development in the socio-economic status and empowerment of the members of the WSHGs. Hence, the objective of the present study is to statistically evaluate the socio-economic development as well as empowerment of the members of WSHGs undertaking aquaculture activities in Keonjhar and Koraput districts of Odisha during 2008-09.

2. MATERIAL AND METHODS

Development is defined as improvement in human welfare, quality of life; social well-being satisfying the population's needs and wants; measured by a range of socio-economic indicators (Sen 1998). Development is a continuous and multidimensional process of improvement in the levels of living. The impact of a development cannot be assessed by a single indicator. Moreover, a number of indicators when analyzed individually do not provide an integrated and easily comprehensible picture of reality.

The study was conducted in Keonjhar and Koraput districts of Odisha. A list of 32 WSHGs undertaking aquaculture activities during 2008-09 were collected from 3 blocks (Keonjhar Sadar, Ghatgaon and Harichandanpur) of Keonjhar district and from 4 blocks (Kundra, Boipariguda, Boriguma and Jeypore) of Koraput district in a simple random sampling method. A total of 280 members of 32 WSHGs (131 members from Keonjhar district and 149 members from Koraput district) were interviewed. Information was collected on their socio-economic development relating to 17 indicators of development for the year 2008-09. These developmental indicators were analyzed for estimation of socio-economic development as well as empowerment of the members of 32 WSHGs. Four indicators directly depict the level of economic development where as nine indicators are connected with social development and four indicators present the level of empowerment. These indicators may not form an all inclusive list but these were the major interacting components of development for the WSHGs.

The statistical technique developed by Narain *et al.* (1991, 1992, 1993, 2007 and 2009) was used for estimating the composite indices of development for 32 selected WSHGs separately for three dimensions of development - Economic, Social and Empowerment on the basis of the following 17 indicators. The composite index of Overall development was calculated by combining all the indicators together. Based on different stages of development, the WSHGs were classified as High developed (H), High Middle developed (HM), Low Middle developed (LM) and Low developed (L) in each dimension – Economic, Social and Empowerment (Bhatia *et al.* 2004).

2.1 Indicators of Economic Development

1. Yield of fish (kg per acre)
2. Employment generated (man-days)
3. Contribution for investment in family occupations (Rs.)
4. Contribution for redemption of old debts (Rs.)

2.2 Indicators of Social Development

5. Contribution for family expenditure on food including fish, vegetables, egg, milk, etc. (Rs.)
6. Contribution for expenditure on medical, family health and family welfare (Rs.)
7. Contribution for expenditure on education of children (Rs.)
8. Contribution for expenditure on durable goods (purchase of house/land, repair/renovation of house, purchase of TV, radio, table, chair, household items, jewellery/ornaments, etc.) (Rs.)
9. Contribution for expenditure on social/family function/rituals (Rs.)
10. Increase in literacy level of women (scores: thumb impression - 1, sign only -2, read only - 3 & read and write- 4)
11. Training acquired by the members (scores: no training - 0, basic orientation -1, accounts & book keeping – 2 & skill up-gradation -3)
12. Members given exposure to various exhibitions, melas and trade fairs (scores: yes - 1 & no - 0)
13. Members participated in different meetings at panchayat/block/district level and awareness camp (scores: yes - 1 & no - 0)

2.3 Indicators of Empowerment

14. Attainment of decision making power of women (scores: yes - 1 & no - 0)

15. Increase in level of self-confidence (scores: yes - 1 & no - 0)

16. Freedom of women and action against injustice (scores: yes - 1 & no - 0)

17. Nominated/elected as a public representative such as member of a village committee/panchayat samiti etc. (scores: yes - 1 & no -0)

The cumulative score (from Sl.No.14 to Sl. No.17) obtained by the members in a continuous process of self-reliance development over a period of time is considered for the indicator of Empowerment.

For this study, the WSHGs were taken as the sampling units. The factors common to all WSHGs under consideration were age of the WSHG (more than 5 years as on March, 2009), age group of the members (30-40 years), number of ST members in the group (more than 90%), literacy level (more than 70% illiterate), average family size (6), primary occupation of the family (agriculture or agricultural workers) and fixed annual household income. SPSS 14.0 was used for statistical analysis of data.

3. RESULT AND DISCUSSION

The composite indices of development were worked out for 32 WSHGs separately for three dimensions of development - Economic, Social and Empowerment along with the Overall development (Table 1).

It is interesting to note from Table 1 that the Development Index of Empowerment (0.38) is more than that of Economic development (0.57) and Social development (0.65). The Composite Index of Overall development has come out as 0.66 which indicates that the level of development was more in Empowerment sector compared to Economic, Social and Overall development during the year 2008-09.

An important aspect of the study is to find out the number of WSHGs falling in different categories of development in each dimension. Table 2 gives the limits of composite indices in different dimensions of development including Overall development and also the number of WSHGs under each category on the basis of level of development.

Table 1. Composite Index of Development of WSHGs

WSHGs	Economic	Social	Empowerment	Overall
1	0.59	0.46	0.30	0.53
2	0.35	0.60	0.19	0.52
3	0.62	0.75	0.38	0.72
4	0.61	0.56	0.38	0.61
5	0.53	0.86	0.60	0.81
6	0.44	0.55	0.54	0.59
7	0.63	0.68	0.53	0.72
8	0.63	0.68	0.53	0.72
9	0.72	0.73	0.82	0.85
10	0.85	0.60	0.53	0.75
11	0.49	0.80	0.82	0.83
12	0.68	0.66	0.38	0.69
13	0.34	0.58	0.58	0.59
14	0.40	0.62	0.46	0.59
15	0.60	0.64	0.54	0.69
16	0.65	0.65	0.39	0.68
17	0.79	0.70	0.37	0.75
18	0.49	0.71	0.27	0.64
19	0.41	0.58	0.27	0.54
20	0.71	0.79	0.70	0.84
21	0.26	0.38	0.46	0.42
22	0.50	0.61	0.30	0.59
23	0.54	0.89	0.40	0.80
24	0.80	0.91	0.24	0.87
25	0.63	0.62	0.18	0.62
26	0.49	0.62	0.25	0.58
27	0.72	0.53	0.02	0.60
28	0.60	0.66	0.36	0.66
29	0.66	0.64	0.09	0.64
30	0.41	0.51	0.00	0.47
31	0.48	0.60	0.09	0.55
32	0.68	0.65	0.09	0.65
Mean	0.57	0.65	0.38	0.66

From Table 2, it is observed that total number of WSHGs both in High middle (HM) and Low middle (LM) level in all three dimensions – Economic, Social and Empowerment as well as Overall development were

Table 2. Number of WSHGs in different stages of development (H, HM, LM & L)

Dimension	Composite Indices		Limits of Composite Index for			
	Mean	SD	High Level (H)	High Middle (HM)	Low Middle (LM)	Low Level (L)
Economic	0.57	0.14	6 (≤ 0.43)	8 (0.44-0.57)	13 (0.58-0.71)	5 (≥ 0.72)
Social	0.65	0.12	4 (≤ 0.53)	15 (0.54-0.65)	8 (0.66-0.77)	5 (≥ 0.78)
Empowerment	0.38	0.21	5 (≤ 0.17)	13 (0.18-0.38)	10 (0.39-0.59)	4 (≥ 0.60)
Overall	0.66	0.11	6 (≤ 0.55)	12 (0.56-0.66)	8 (0.67-0.77)	6 (≥ 0.78)

Note : Figures given in parenthesis indicate the limits of composite indices for different stages of development

more (63% of total number of WSHGs) than the other two categories i.e. High level (H) and Low level (L).

Inter-Relationship between Two Dimensions of Development (Economic, Social and Empowerment) and Each with Overall Development

In order to establish an inter-relationship between different dimensions of development (Economic, Social and Empowerment) and each with Overall development, Correlation Coefficients were determined (Table 3).

From the Correlation Matrix, it is revealed that the Composite Index of Overall Development is highly correlated with the Composite Index of Social Development ($r = 0.88$) followed by Economic Development ($r = 0.66$) and Empowerment ($r = 0.56$) (Significant at 1% level of significance). The Correlation Coefficient between the Composite Index of Economic Development and the Composite Index of Social Development is 0.41 (Significant at 5% level of significance).

4. CONCLUSIONS

The broad conclusions emerging from the study are as follows:

1. Through aquaculture activities, most of the WSHGs (more than 63%) have developed to the stages of High middle (HM) and Low middle (LM) development.

2. The members of the WSHGs were empowered to a higher level (Composite Index = 0.38) compared to the level of Economic Development (Composite Index = 0.57), Social Development (Composite Index = 0.65) and Overall development (Composite Index = 0.66) during the year 2008-09 by doing aquaculture activities.

3. The Composite Index of Overall Development is highly correlated with the Composite Index of Social Development ($r = 0.88$) followed by Economic Development ($r = 0.66$) and Empowerment ($r = 0.56$) (Significant at 1% level

Table 3. Correlation Matrix

Dimensions	Economic	Social	Empowerment	Overall Development
Economic	1.00	0.409*	0.04	0.664**
Social		1.000	0.34	0.883**
Empowerment			1.00	0.560**
Overall Development				1.000

Note : * Correlation is significant at 0.05 level (2-tailed)
　　　　** Correlation is significant at 0.01 level (2-tailed)

of significance). The Correlation Coefficient between the Composite Index of Economic Development and the Composite Index of Social Development was 0.41 (Significant at 5% level of significance).

ACKNOWELDGEMENT

REFERENCES

Anon (2000 – 01). *Handbook on Fisheries Statistics*. Govt. of Odisha.

Anon (2006-07). *Annual Activity Report*. Women and Child Development Department, Govt. of Odisha, 38.

Anon (2007-08). *Economic Survey.* Government of Odisha, 20/2.

Bhatia, V.K. and Rai, S.C. (2004). Evaluation of Socio-economic development in small areas, sponsored by Planning Commission, Government of India, New Delhi, 92P.

Narain, P., Rai, S.C. and Sarup, S. (1991). Statistical evaluation of development on socio-economic front. *J. Ind. Soc. Agril. Statist*., **43**, 329-345.

Narain, P., Rai, S.C. and Sarup, S. (1992). Classification of districts based on socio-economic development in Odisha. *Yojana*, **36**, No. 23, 9-12.

Narain, P., Rai, S.C. and Sarup, S. (1993). Evaluation of economic development in Odisha. *J. Ind. Soc. Agril. Statist.,* **45(2)**, 249-278.

Narain, P., Rai, S.C., Sharma, S.D. and Bhatia, V.K. (2007). Statistical evaluation of social development at district level. *J. Ind. Soc. Agril. Statist*., **61**, 216-226.

Narain, P., Sharma, S.D., Rai, S.C. and Bhatia, V.K. (2009). Inter-district variation of socio-economic development in Andhra Pradesh. *J. Ind. Soc. Agril. Statist.,* **63(1)**, 35-42.

Ninawe, A.S. and Diwan A.D. (2005). Women in fisheries sector and entrepreneurship development: Steps for improvement. In: *Women Empowerment in Fisheries* (Eds. A. S. Ninawe and A. D. Diwan). 1-16.

Sen, A. (1998). Mortality as an indicator of economic success and failure. *Eco. J.*, **108(446)**, 1-25.