



A multivariate analysis into the sustainability of farming by women groups

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Abstract

The investigation entitled “Indicators of sustainable agricultural development: A multi-variate analysis among self-help groups of “Kudumbashree Mission” in Thiruvananthapuram district” was conducted with the objective of critically analyzing the extent of attainment of the three pillars (indicators) of sustainable development, namely, economic development, social development and environmental protection by the agricultural activities of the self-help groups under Kudumbashree Mission in the study area. The study warranted two categories of respondents. The first category was for studying the sustainability of Self-Help Groups (SHG) and it included 40 SHGs. The second category of respondents was for studying the profile characteristics and it consisted of 200 SHG-based farm women. The data was collected from the randomly selected respondents through a structured interview schedule after pre-testing. The salient finding of the study was that the sustainability of groups involved in farming in the study area was “Above Average”.

Keywords- SHG; kudumbashree; sustainability; SADI; development

I. INTRODUCTION

As a social movement with government support, Self Help Groups (SHGs) become more or less a part and parcel of the society [1]. Mostly women are engaged in SHG based activities. In India, 78 per cent of the economically active women are engaged in agriculture and allied sector. Their participation rate in labour force is 51 per cent. But we are living in an era where agriculture faces multiple problems like alienation from the youth, increase in fallow lands, increasing stress to environment and non-remunerative as an occupation. In spite of all these odds, *Kudumbashree Mission* in Kerala is leading by example a visibly viable agricultural development model by harnessing the group efforts of poor women of the state. The above study had the aim of finding out the sustainability of this model. United Nations in its guidelines identified economic development, social development and environmental protection as the three pillars of sustainable development [2].

II. METHODOLOGY

In order to study on the sustainability of group farming, 36 variables were used. Fifteen profile characteristics including age, education, SHG experience, farming experience and information seeking behaviour were studied for women coming under each of the five study areas and were compared using ANOVA and correlation analysis. An index namely Sustainable Agricultural Development Index (SADI) was developed specifically for the study to measure the extent of sustainability exhibited by the farming groups. It contained three indicators, namely, economic development, social development and environmental protection with each of them having separate sub-indicators. Principal Component Analysis (PCA) was used to elucidate the relative contribution of each of the indicator and sub-indicator towards sustainability of group farming by women.

III. FINDINGS AND DISCUSSION

The study could reveal that the mean age of the members of the SHGs in the study area was 45.03 years and more than half (52.5 per cent) of the groups were having members of middle age (35

to 45 years). The size of individual groups varied from four to six with a mean of 4.33. Three-fourth of the studied groups had only four members each. Of these groups, 12.5 per cent did not have even a single BPL member, while 20 per cent did not have any APL member. On social categorization, 72.5 per cent groups had atleast one ‘General’ member, 47.5 per cent had atleast one ‘OBC’ member but only 22.5 per cent had atleast one ‘SC/ST’ member.

Regarding the crops raised by the groups, banana was cultivated by all the groups. In addition, 47.5 per cent of the groups were cultivating vegetables and 45 per cent were cultivating other crops like tapioca, elephant foot yam, turmeric and ginger. Average farm size was found to be 190.56 cents. Seventy per cent of the groups had availed credit from formal institutions and the mean loan amount was found to be 1.41 lakh rupees. Ninety five percent of the groups employed external labour and it was mainly for initial land preparation.

The SADI value elucidated from the study was 0.70 which is definitely “Above Average”. The Principal Component Analysis revealed that the first Eigen value of 2.08 accounted for 69.28 per cent of the variability (Table 1) with all the three indicators contributing almost equally to the sustainability of group farming with ‘economic development’ marginally ahead of the other two (Table 2).

Table 1: Eigenvalues of the Correlation Matrix

	Eigenvalue	Difference	Proportion	Cumulative
1	2.07836398	1.51481873	0.6928	0.6928
2	0.56354525	0.20545448	0.1878	0.8806
3	0.35809077		0.1194	1.0000

Table 2: Eigenvectors Corresponding to the Table 1

	Prin1	Prin2	Prin3
Economic Development	0.599568	-.338223	-.725344
Social development	0.593327	-.420388	0.686467
Environmental Protection	0.537105	0.841950	0.051374

Coming to the sub-indicators of each of the three main indicators, it could be found out that ‘BC ratio’ affects ‘economic development’ the most, while ‘team spirit’ and ‘group leadership’ affects the ‘social development’ the most. Again, ‘avoidance of chemical fertilizers’ and ‘avoidance of chemical pesticides’ contributed to the maximum of ‘environmental protection’.

On studying the profile characteristics of farm women, it was revealed that there was significant difference between age of women in the five CDSs with Kunnathukal being youngest among the five and Karakulam being the eldest. There were also significant differences between women in the five CDSs for the variables like farming experience, self confidence, scientific orientation, achievement motivation, economic motivation and risk orientation. But for SHG experience and innovativeness, the various CDSs did not exhibit any significant difference.

Correlation analysis of the 200 respondents revealed that as the age increased, SHG experience and farming experience were also increasing, while innovativeness showed a declining nature with the advancement of age. Farming experience was found to increase with SHG experience. The variables like self confidence, innovativeness, scientific orientation, achievement

motivation, economic motivation and risk orientation were all found to be positively correlated with one another.

Constraint analysis was also done for the entire study and the women identified ‘cumbersome procedures in getting bank loan’ as their most prominent constraint followed by ‘non-availability of water for irrigation’.

IV. CONCLUSION

The study could find out that the sustainability of groups involved in farming in the study area was “Above Average”. That means it is not too high or not too low. The sustainability can diminish if the BC ratio decreases or the leadership within the group weakens or when the groups start using more and more chemicals for farming. The study recommends a constant hand-holding from the part of *Kudumbashree Mission* along with to and fro communication between farm women and the District Mission are imperative for the long term sustainability of SHG-based farming in the study area.

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