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# Effectiveness of Collective Farming Under Kudumbasree programme of Kerala

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## ABSTRACT

A study was conducted among groups involved in the collective farming under Kerala State Poverty Eradication Mission (Kudumbasree mission) of Kerala in order to assess the perceived effectiveness of collective farming in terms of resource, technology, extension, marketing and capacity building. Considerable improvement was observed in all the components studied, indicating that group mobilization have potential to overcome the multiple constraints faced by small farmers at individual level. Major factors influencing the effectiveness of farming groups were found to be level of education, social participation, economic motivation, Group dynamics and support from the promoting institution

**Keywords:** Collective farming, Effectiveness, Kudumbasree

## INTRODUCTION

Group mobilization and consequent collective action is often pointed out as an important strategy to overcome the various constraints faced by the small and marginal farmers at individual level. The concept of collective action is re-emerging recently to organize small farmers in developing countries in the wake of agricultural market liberalization (Coulter *et al.*, 1999). Collective actions can increase farmers' capacity to access formal credit (Quizon and Rieger, 2003), offer an alternative to state and markets institutions (Pandolfelli *et al.*, 2007), allows smallholder farmers to jointly invest in management practices that provide collective benefits in terms of economic and sustainability gains (Shiferaw *et al.*, 2008), can help the smallholders to overcome the problems of transaction cost arising from their small size of marketable surplus, can improve their access to resources such as inputs, credit, training, transport and information and increase bargaining power, can also reduce individual farmer risk (Agarwal, 2010). Fischer and Quaim (2010) found that marketing through the group yields a higher price than selling individually at the farm gate.

Kerala State Poverty Eradication Mission or Kudumbasree programme is a Self Help Group based women oriented initiative to fight absolute poverty. It was launched in 1998 by the State Government with

the active support of Government of India and NABARD. The lower most tier of Kudumbasree constitutes the SHGs consisting of 10-20 women members selected from the poor families. SHGs under Kudumbasree are known by the name 'Ayalkoottam' (Neighborhood Groups). Kudumbasree is one of the largest women's movement in Asia with 3.8 million members in 0.2 million SHGs (Kudumbasree, 2010). Since inception, Kudumbasree has promoted farming and other allied activities for income generation of SHG members. Many special projects on agriculture have also been implemented by the mission in collaboration with local self governing bodies and other governmental agencies. Collective Farming is an initiative introduced by Kudumbasree to encourage cultivation by neighborhood groups. Joint liability groups of women farmers are formed under the collective farming initiative. The concept of the collective farming emerged as a response to the paradoxical situation of heavy dependence of Kerala on neighboring states for food commodities in spite of the fact that large areas of cultivable land was kept idle in the State due to the waning interest in agriculture. On the other hand, thousands of poor families who are ready to undertake agriculture as a livelihood option did not have enough land to venture into agriculture. In this context, Kudumbasree mission encouraged Neighborhood Groups to undertake lease land farming as an income

generating activity. Presently, there are 2,25,200 women cultivators in 46444 groups were cultivating various crops like paddy, banana, tapioca and vegetables in 25062 hectare (Kudumbasree, 2010). Harnessing the potential of SHGs in agriculture has wider implications since collective action is considered as important strategy to overcome the number of problems faced by small and marginal farmers. All the activities like farming, dairy, coconut processing, ethnic delicacies etc are selected based on the prior knowledge and skill of the members in the respective areas. Knowledge of the members in the activities was upgraded through various capacity development programmes of the mission and other agencies.

### MATERIALS AND METHODS

The study was conducted in Kozhikode district of Kerala. The units of analysis of the study were exclusive women group under Kudumbasree programme involved in collective farming activities. From each district fifty groups were selected following a multi stage random sampling procedure and leader of each SHG was included in the sample. The Personal interview with structured questionnaire was used for collection of primary data. An effectiveness index was developed for the study based on five components which were selected based on literature review and expert opinion.

- (i) Resource mobilization: resource mobilization was operationalised as the extent to which various resources like credit, inputs and animals were available to the respondent
- (ii) Extension orientation: Extension orientation was operationalised as the extent to which the respondent was aware of various extension programmes, access to and availability of public and private extension services and participation in extension activities.
- (iii) Marketing effectiveness: Marketing effectiveness refers to respondents' perception about availability of market information, presence of intermediaries, collective marketing facilities, bargaining power of producers, transparency in marketing operation and marketing transaction cost
- (iv) Capacity building: Capacity building was operationalised as the extent to which respondent have knowledge and skill to undertake diversified activities, to diagnose and solve the problems and to learn and use innovations.

In case of the four components mentioned above, respondents were categorized into following categories based on their responses

Response	Score
Nil	0
Low	1
Medium	2
High	3

- (v) Technology adoption: Technology adoption was operationalised as the extent to which the respondent has adopted various dairy technologies. Adoption of dairy technologies by the respondent was measured on a nominal scale based on the responses; as below:

Response	Score
Yes	1
No	0

For each of these components separate index was calculated as follows for both periods:

$$\text{Effectiveness index} = \frac{\text{Actual score obtained for that component}}{\text{Maximum possible score for that component}} \times 100$$

To find out the determinants of collective farming effectiveness discriminant function analysis was used. Discriminant function analysis is a statistical technique to study difference between two or more groups with respect to many variables at the same time (Klecka, 1980). A linear discriminant equation,  $D = v_1X_1 + v_2X_2 + v_3X_3 + \dots + v_iX_i + a$ , is constructed such that the two groups differ as much as possible on D.

Where D = discriminate function  
 $v$  = the discriminant coefficient or weight for that variable  
 $X$  = respondent's score for that variable  
 $a$  = a constant  
 $i$  = the number of predictor variables.

Collective farming groups were classified into two groups of almost equal number based on the value of effectiveness index and coded as 1 and 2. Socio

economic and psychological variables considered for analysis include age, education, annual income, land holding, livestock holding, social status, social participation, economic motivation, support from Kudumbasree, group dynamics, functional linkage, credit availed, self reliance and risk taking ability. Those variables with the largest standardized discriminant coefficients are the ones that contribute most to effectiveness of collective farming.

## RESULTS AND DISCUSSION

Perceived effectiveness of collective farming groups was studied at individual level. Five components were identified and improvement in these components was analysed and mean score for all the components was presented in Table 1.

The results of the paired t-test showed that difference in the mean score for all the components of effectiveness index were statistically significant at 1% level of significant. There was considerable difference between the mean score of components in both the periods.

Access to land was one of the major issues faced by women SHGs to take up farming as an income generating activity. Intervention by the Kudumbasree personnel and office bearers of gram panchayats has helped the group members to lease the land for cultivation. Many women SHG members have expressed the difficulty in continuous access to the land on lease. In many cases, land owners were not willing to agree for a lease period more than one year. Nair and Vineeta Menon (2006) in their study on lease land farming in Kerala had pointed out that it is the responsibility of the state to formulate an appropriate policy framework for lease land farming in promoting small-scale lease farming (and not large-scale contract farming). Such a policy framework would ensure not only the fixity of tenure and the lessors' right over land, but also spell

out local level mechanisms to organize contracts between the lessors and lessees, making available the relevant information on the availability of land for lease, its quality, etc, to potential tenants. The panchayats, which have already involved in supporting the self-help groups to take up lease cultivation, could play a leading role in this process; they could expand the scope of lease farming by creating a land bank that would function as an intermediary between those who want to lease out their lands and those who want to lease in. Such land banks could also work out an insurance scheme for leaseholders to get a compensation for crop failure due to natural calamities or fall in incomes due to sharp fall in prices.

Another aspect was access to credit. Under the collective farming initiative of Kudumbasree mission, Primary Agricultural Cooperative Societies (PACS) provide interest free loans for selected crops and play an important role in the farming by these women groups. Nationalised banks and some private banks provide crop loan for the group at 7 percent. Out of this 7 percent, 5 percent is provided as interest subsidy from Kudumbashree and hence the group gets the loan at a low interest rate. Group members in Kozhikode districts have received, on an average, Rs. 1263 as area incentive and Rs.444 as interest subsidy. Access to credit has improved the timely access to inputs also. Reduction of input transaction cost due to economy of scale achieved in purchase and transportation of inputs has also contributed to the effectiveness of collective farming groups in resource mobilization front.

The pooling of human resource has helped them to overcome the problems of labour shortage and better supervision of the enterprise. Indian agriculture is experiencing shortage of labour in rural farms, a phenomenon which was highly unlikely in the Indian context till recently (Alha and Yonzon, 2011). Agarwal (2010) has pointed out that group based agriculture

**Table 1: Mean score obtained by SHG members on the components of effectiveness index**

Components of SHG effectiveness index	Score		Paired difference	t-value
	Pre-SHG	SHG		
Resource mobilization	57.33	86.22	28. 89	15.6786**
Extension orientation	56.33	86.67	30.33	14.5098**
Marketing effectiveness	48.59	68.15	19.56	12.6192**
Technology adoption	24.4	59.2	34.8	1.82602**
Capacity building	48.59	68.15	19.56	12.6192**

helps facilitate labour sharing and easy substitution for a member who is temporarily unable to work due to illness or other exigencies. Group effectiveness was also visualised in the better management of the enterprise compared to individual farmers.

Awareness about extension programmes and access to extension service have been improved in case of all the groups studied. Activities of Department of Agriculture were integrated with the collective farming initiative of Kerala. Group members were provided with seeds, and financial incentives through decentralised offices of agricultural department, called as 'Krishi Bhavans'. Facilitation by network of SHGs and SHG federations has improved the information dissemination, especially on new programmes and other activities. It was also observed that access to advisory service from public extension system is still constrained by operational limitations of public extension system. Though there was increase in the number of visits by group members to Agricultural Offices, purpose of visit was mainly for accessing inputs and financial assistance rather than for seeking crop production and protection information. Field visits by extension personnel have also not increased to satisfactory level. Dependence on input dealers for plant protection advice is still continuing in the case of many SHGs.

It was observed that group mobilization has not improved the marketing effectiveness to a marketable level in the case of crop production. Under collective farming initiative, Kudumbasree mission has provided financial and technical assistance of crop production, but marketing assistance is restricted to organization of seasonal fairs only. Since the collective marketing facilities not in operation, SHG members were marketing their produces individually. This is an area where SHPIs have to improve their presence.

There was noticeable improvement in the awareness about and adoption of technologies. But level of adoption is still lower compared to improvement in the awareness about technology. Though all the SHG members were aware of the High Yielding Varieties, rate of adoption was found to depend on the provision of seeds/planting material by SHPI or agricultural department. SHG members were provided number of

trainings on different aspects of farming by respective SHPIs as well as various other agencies like Agricultural Technology Management Agency (ATMA). All the SHG members have perceived considerable improvement in their skill and competency to carry out the enterprises they have undertaken. Apart from the trainings they have received field level experiences and the group efficacy has also contributed to development of their capacities. Participation in the activities, from planning to marketing, has given the confidence to continue farming as the means of their livelihood. Even then many of the SHG members have expressed the need for more skill based trainings especially in the areas of value addition, pest and disease diagnosis, diversified farm activities like ornamental fisheries, poetry, use of small scale machineries like weed cutter etc.

Discriminant function analysis was used to find out the determinants of SHG effectiveness. Respondents were classified into two groups (High and Low) based on their perceived effectiveness score. Appropriateness of this classification was verified using classification table results. The classification results revealed that 100% of original grouped cases correctly classified and 88% of cross validated groups<sup>1</sup>

The major determinants of effectiveness of collective farming as revealed from results of discriminant function analysis are education, social participation, economic motivation, group dynamics and support from Kudumbasree mission.

It can be inferred that groups with members who were better educated and having more participation in formal organizations were able to mobilize the resources and demand for extension services. They were able to better understand the technologies and practices and adopted it. Economic motivation of the group members has contributed to the effectiveness through their urge to maximize the gains for improvement in their economic condition and standard of living. Group dynamics effectiveness in terms of participation of members, democratic approach and group cohesion is important to harness the potential of group mobilization. The results have shown that groups with higher group dynamic effectiveness were more effective in terms of resources, technology, extension, marketing

<sup>1</sup>Cross validation is the process of testing a model on more than one sample to assess the reliability and generalizability of the findings. In cross validation, each case is classified by the functions derived from all cases other than that case. The cross validated set of data is a more honest presentation of the power of the discriminant function than that provided by the original classifications are correctly classified.

**Table 2: Classification results of discriminant function analysis**

		Effectiveness Index	Predicted group membership		
			High	Low	Total
Original	Count	High	25	0	25
		Low	0	25	25
	%	High	100.0	.0	100.0
		Low	.0	100.0	100.0
Cross-validated <sup>a</sup>	Count	High	22	2	24
		Low	4	22	26
	%	High	91.7	8.3	100.0
		Low	15.4	84.6	100.0

**Table 3: Results of discriminant function analysis of factors affecting effectiveness of collective farming**

Socio-economic characteristics	Significance	Standardized discriminant function coefficient
Age	0.238	-1.575
Education	0.003	1.406**
Annual Income	0.757	1.213
Land Holding	0.760	1.264
Social Status	0.105	0.760
Social Participation	0.016	0.656**
Information seeking behaviour	0.324	0.507
Economic Motivation	0.000	1.337**
Group dynamics	0.000	0.443**
Support of Kudumbasree	0.000	0.132**
Functional Linkage	0.434	0.786
Risk Taking Ability	0.630	-0.537
Self Reliance	0.500	0.569
Credit availed	0.347	0.454

\*Significant at the 0.05 level of the probability.

\*\*Significant at the 0.01 level of the probability.

and capacity building. Efforts of Kudumbasree mission were instrumental in group mobilization as well as forging their linkages with key stake holders. Convergence of various schemes and activities of line department with Kudumbasree mission have significantly related to the support received by the groups.

### CONCLUSION

The assessment of effectiveness of collective farming groups in Kozhikode district of Kerala revealed that farming groups could prove considerable effectiveness in terms of resource, technology, extension, marketing and capacity building. Scope for further improvement

still exists. It was also observed that coordination with other agencies and institutions like co-operative banks, line departments as well as convergence with various programmes of central and state governments played an important role in realizing the potential of group mobilization. Role of concerned promoting institution (Kudumbasree mission) was found to be instrumental in forging these linkages. Potential of group mobilization should be harnessed in agriculture and allied activities to address the multiple constraints faced by small, marginal, women and tenant farmers. Collective action has important role in promoting inclusive growth. So, due attention should be given to the factors affecting the synergy of collective action to achieve inclusiveness in agriculture.

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